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ABSTRACT

Ten essays are presented that consider a number of philosophical and technical issues associated with an emerging curriculum strategy known as competency-based education. Among them are: The debate over the relevance of liberal versus practical subjects; faculty renewal; the impact of reform on the student; the validation of excellence; and the technology of curriculum change. These issues are given new meaning and emphasis when examined within the context of a competency perspective. (LBH)

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Renewing Higher Education:

The Competency-based Approach

James I. Peterson, Editor

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Vance T. Peterson, Editor

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PREFACE

The ten essays appearing in this volume consider a number of philosophical and technical issues associated with an emerging curriculum strategy known as competency-based education. Among them are: the ageless debate over the relevance of liberal vs. practical subjects, faculty renewal, the impact of reform on the student, the validation of excellence, and the technology of curriculum change. These issues are given new meaning and emphasis when examined within the context of a competency perspective.

This monograph is the end-result of a regional American Association for Higher Education conference held at The University of Toledo in April 1975 entitled, "Learner-Centered Reform: Truth or Competence?" Among the major presenters at the conference were several of the current leading spokesmen for the competency-based position in higher education. Most of them are represented in this compilation of edited papers.

Thomas B. Corcoran, Senior Project Officer for The Fund for the Improvement of Postsecondary Education (FIPSE), offers a highly personal account of his own commitment to competency-based education (CBE) and outlines some of the major issues to be resolved in developing individual programs. Dr. Corcoran describes a major strength of CBE as its ability to focus attention on the linkage between educational theory and practice and its value as a heuristic in forcing re-examination of many critical assumptions underlying the educational process. Dr. Corcoran's paper cites several major benefits of the CBE approach and suggests some of the dangers that may lie ahead in implementing the concept.

In responding to the question, "Competence in What?" Gary A. Woditsch takes on the difficult task of coming to grips with the normative dimensions of the several generic

capabilities making up "competence." He poses a number of critical questions that require thoughtful consideration by any educator in any curriculum: are students to be trained to be competent members of society, or is it the proper role of education to try and make them transcendent beings? Should competence reference the standards of the many or of the few? Can we adequately train students for the future by defining competence in terms of what is normative in human behavior today? Can higher education take ordinary students and make them capable of extra-ordinary behavior? Dr. Woditsch is equally critical of those who seek only "the truth ensconsed in the wisdom of the past" as of those who would relegate to higher education a role of servitude to some "societal blueprint."

Next, Frederick J. McDonald of the Educational Testing Service takes a look at the assessment of competence and argues that the evaluator must become cognizant of the contexts within which competency might be expected to occur. In order to do this, he suggests that persons who already exhibit competence must be located and their behavior analyzed in relation to the conditions under which they operate. According to Dr. McDonald, it is wrong to undertake assessment simply based on a list of objective competence criteria. Rather, as in behaviorism, evaluation must first specify some set of restricted conditions under which a desired behavior is to occur, and then observe whether or not it does. He suggests, "What we need to do in the assessment process is worry about the validity problem: the reliability problem will take care of itself."

An administrator's view of organizing for assessment, and some new organizational features that emerged at Mars Hill College as a result of the implementation of a competence-based curriculum, are described by Robert E. Knott. Three distinct functions involved in the competency-based approach (stating competencies, organizing learning experiences, and defining evaluative criteria) are cited as critical determinants of structural components that developed as the new curriculum

was instituted. Such components as general studies, departments, special programs, and assessment teams are described and discussed in some detail. Various techniques for encouraging faculty to adopt a process focus with emphasis on outcomes are discussed. Dr. Knott concludes by outlining several unanticipated effects of the competency-based framework at Mars Hill which had organizational impact.

Dr. Knott next turns his attention to the topic of faculty renewal in a competency-based college and offers some principles for organizing a faculty development program. He proposes a procedure whereby faculty perform a self-assessment and analysis of skills required for effectiveness in a CBE environment.

A second look at faculty development is provided by Lance C. Buhl, who traces the development of the competency-based movement and asserts that, since competence always has been the goal of education, CBE is simply the next step toward greater precision in the technology of teaching and learning. Dr. Buhl also argues that the competency approach is a logical extension of the revolution in access since it is a vehicle for focusing on the diverse learning needs of a disparate student population.

Some of the problems and techniques relating to the implementation of the competency-based approach is the subject of Mark A. Schlesinger's contribution. He suggests that the central problem of implementing a competence framework is that of convincing the "committed disciplinarian" to think in terms of lifelong capabilities that transcend disciplinary perspectives. Dr. Schlesinger asserts that every discipline can contribute perspective to nearly every competence deemed important. He suggests, "It is not inconsistent to believe simultaneously in the integrity of the disciplines and the validity of generic, transferable capabilities."

James L. Litwin and Marcia Mutterer Mentkowski concentrate on the impact on students and faculty of a com-

petency-based framework. Dr. Litwin lists the essential characteristics for any competence-based program and describes the primary components of the student role in a CBE process. He then conveniently summarizes the major problems and benefits reported by students during evaluations of several existing programs.

Considerable insight into the impact of one program is offered by Dr. Mentkowski in her comparison of the ideal and the real of three central components: criterion vs. norm-referenced learning, diagnostic evaluation, and public criteria. She observes: that rewards remain as an expectation of successful students; that there often is a temptation by faculty to lower module requirements when pressed by the realities of the academic calendar that limit recycling opportunities for slower students; that the increased emphasis on data gathering demanded in a competency-based framework sometimes puts off humanistically oriented faculty and raises anxiety levels in students who have been conditioned within traditional norm-referenced systems to fear evaluation; and, that since poor criteria and objectives are as public as excellent ones, the potential for overemphasis of the negative aspects of a program exists. Dr. Mentkowski concludes her thoughtful essay with several suggestions for how the gap between theory and practice might be closed in the future.

Some final thoughts about the competency perspective are offered by Gary A. Woditsch in a probing, philosophical analysis of CBE *vis-a-vis* general education. Dr. Woditsch suggests that general education must be dedicated to developing students who can build and manipulate models of their world. He argues that model-building is a highly refined competence, akin to cognition, which serves as a "meta-language" allowing new manipulations and insights into old problems. Dr. Woditsch displays his strong commitment to the idea of general education as it relates to CBE in a number of eminently quotable lines. He concludes his remarks, and the monograph, with a brief description of the role being played by

the Competency-based Undergraduate Education (CUE) Center at Bowling Green State University towards developing the future of CBE in general education.

Like any project of major scope, this monograph is the end result of the contributions of a number of individuals besides the authors represented, all of whom deserve recognition and thanks for their efforts. Cricket Levering, of the AAHE Washington staff, provided excellent guidance and counsel regarding numerous organizational details relating to the original conference. Significant manuscript preparation and initial editing of transcriptions of the conference tapes was performed by Kathy Haefner and E. Dale Berkey. Walter Douglas, Business Manager of the College of Education at the University of Toledo, provided clerical assistance and equipment necessary to transcribe the several hours of tapes. Pat Barchick and Denise Zdunczyk, with help from Carol Pethe, spent countless hours in faithfully transcribing the tapes. Finally, the doctoral students in higher education at The University of Toledo who helped to organize and staff the conference deserve thanks, especially Rose Mary Healy and Donna Mayfield, co-chairpersons, and Morten Anderson, Tom Eakman, Judy Hanneken, J. Otis Haywood, Fred Kanke, Rick Sieber, Duane Whitmire and Bob Zellers. If, despite the many good works of so many people, errors of inclusion, exclusion, misplacement (or worse) still have occurred, they are the responsibility of the editor.

June 1976

Vance T. Peterson
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I.

PROSPECTS AND PROBLEMS OF COMPETENCY-BASED EDUCATION

Thomas B. Corcoran

I would like to begin by sharing with you some personal experiences that account for my interest in the competency-based approach and for my optimism about its potential for reshaping postsecondary education. I share these with you because I believe that proposals for reform can be understood better if one understands the commitments of their advocates. Differences in the sources of interest in an idea often explain the variations in its realization.

About 15 years ago I was heavily involved in the civil rights movement as a student at the University of Cincinnati. One of the objectives then was to crack the barriers that kept minorities out of the craft unions. There were some important assumptions underlying that struggle. One assumption was that opportunities for employment ought to be determined by what an individual can do rather than by race or where or how the person acquired the skills. The issues of access to jobs and being judged upon one's merit remain critical social issues and are part of the dynamic swing to competency-based education.

After college I spent five years teaching in East Africa. There the educational system focused upon the preparation of students for externally set examinations. Many of my American colleagues assailed these examinations. Now we all know that examinations are inherently evil and it was true that these exams had some serious flaws. Yet, I discovered that the presence of the examinations changed the relationship between the teacher and the student from that which I had become accustomed to in the United States. The

teacher became a senior partner in a learning enterprise. The objective of the enterprise was passing an exam that some faceless party had written. The teacher became a coach and the overriding concern was the student's ability to perform the requisite tasks. It occurred to me that in situations where teachers both determine and apply the standards the relationship between teachers and students is marred by anxiety and guilt. I believe this to be a serious and deeply rooted problem in American education.

Later I was designing and administering Peace Corps training programs. We did not know we were doing "competency-based" education. I do not remember anyone on the Peace Corps training staff speaking the technocratic jargon of competency-based education. But we faced the problem of transforming inexperienced and often unskilled college graduates into competent volunteers in thirteen weeks. They had to acquire competence in language, community organization, teaching skills, agricultural skills and various other things.

In retrospect, several things stand out about this experience. One was the inability of recent college graduates to apply their knowledge. The second thing was the motivating power of acquiring competence in a skill area. These young people were willing to work extraordinarily hard in order to become competent in a language, teaching skill, or some other area because they knew that it was essential to their future. The third thing was the importance of these characteristics we refer to as affective or non-cognitive; they frequently seemed to be the most significant predictors of competence. They were also the most intractable.

The fourth experience I wish to mention came later while working in university settings at Utica College, Syracuse University, and SUNY at Cortland. Two key features of these settings deserve mention here. The first is the cottage industry atmosphere of most universities and colleges. It is difficult to get two or three faculty to cooperate in order

to solve a teaching or learning problem. Collaboration on research is the norm; collaboration to aid the students is exceptional. Almost all faculty believe that academic freedom means they have the privilege of doing their own thing and, in fact, they are encouraged to do so. In most of our colleges and universities the faculty have too much freedom to define their jobs and too little accountability for their performance. The norms of faculty life are incompatible with organizational functions in the area of instruction.

Later at the Educational Policy Research Center, I participated in several funded projects that focused on the skills needed to function effectively in the latter half of the twentieth century. I suppose the best single discussion of this issue was in the recent report by the White House Panel on Youth, headed by James Coleman, which examined the mechanisms we rely on to prepare youth for adulthood and found them wholly inadequate. The report argues the need for a *youth* policy rather than an educational policy. I definitely agree. The report discusses two classes of goals for such a policy. Let me share them with you because I think they would be a good starting point for designing a competency-based general education curriculum. In fact, they are a good framework for setting the goals for any educational program.

The first class of goals discussed in the report is labelled self-centered goals. Included are: cognitive and non-cognitive skills that are necessary for economic independence and occupational opportunities; the capability to manage one's own affairs; the capability to be a consumer, not only of goods but also the cultural riches of our civilization; and the capability of engaging in concentrated involvement in an activity. They are rather generally stated but they are a good starting point for defining critical competencies.

The second class of goals is socially oriented and also has several parts. The first objective is contact with persons

of different social classes, subcultures, and age groups. The second is the realization that the experience of others depends on one's actions. The third is involvement in collective efforts to attain valued goals. Only the first of these is treated seriously by American educators.

The final personal remark will be very general and perhaps too vague. I am concerned about the increasing sense of inefficacy among our citizens. The growth of pessimism is disturbing. You may ask what this has to do with postsecondary education. I am not suggesting that postsecondary education alone offers a solution to these problems. I am suggesting that there is more at stake in thinking about the objectives of postsecondary education than the budgets of colleges and universities.

These remarks are intended to place me in some perspective. They should give you some idea of why I am concerned about the development of competency-based education.

Let us shift from my biography to the Fund for the Improvement of Postsecondary Education. I will attempt to answer three questions about the Fund:

1. How does the Fund view competency-based education?
2. Why is the Fund promoting it?
3. What have we learned so far?

First, how does the Fund view competency-based education? There are almost as many definitions of competency-based education as there are programs. For example, "Competency-based refers to the determination, attainment, and assessment of skills required to reach desired goals." That statement comes from an HEW task force report on competency-based education. It reads well but it isn't clear exactly what it means. Since I must plead guilty to having written it, I will try to make it clearer by reading a bit more from that same document. The competency-based approach

begins with the definition of the knowledge, skills, and attitudes required for successful performance in a particular role. Demonstrated competence under realistic conditions becomes the basis for awarding credentials. The time, place, or manner in which competence was acquired becomes an irrelevant issue — a simple concept but revolutionary in its implications and quite difficult to put into operation.

There are difficult issues to be resolved in developing a competency-based program. First, it is necessary to determine the goals of the institution, to define its social mission. This involves difficult value questions such as: do we want to determine in advance the general education component of the program or should it be a matter of individual preference? Do we want citizens who are always loyal to their nation's policies or do we emphasize the moral and political principles underlying our government? Such questions are always present but often ignored in designing programs. The competency-based approach, when taken seriously, pushes them to the forefront. Once the goals are defined, it is necessary to specify the behavior or competences that are required to attain them. When the competencies are specified, performance standards must be determined and appropriate modes of assessment developed. Then it becomes possible to award credentials on the basis of demonstrated attainment rather than the aggregation of credit hours or grades awarded arbitrarily and privately by individual faculty members. Now this sounds quite simple but, of course, it is not. It also sounds "old hat," and it is true that the concept is not new. However, taking this approach seriously *is* new.

I think the previously offered definition can be translated in a variety of ways. This is intentional because the Fund has tried to avoid being overly prescriptive. Instead, the Fund seeks to respond to the problems perceived by those who work in or are served by our postsecondary institutions. Thus competency-based education is viewed as

an approach that is responsive to significant problems of service, delivery, costs, and accountability. It begins with a reexamination of goals. There are a variety of ways of going about this; what is important is that the institution reexamine its mission and make its goals explicit and operational.

The second thing the competency-based approach does is to focus attention on the linkage between theory and practice and on the oft-ignored questions of the state of the practice or the "theory-in-practice." We have such problems because we gradually have moved away from situations in which people simulate the roles they are expected to perform after graduation. We have moved to an information focus and do not offer students opportunities for action under controlled conditions.

Competency-based education forces these issues to the forefront. You cannot avoid discussions of the differences between the ideal and the real within the professions. You cannot escape issues of training versus education and the division of labor between college and employer.

There is a comprehensive character to competency-based education and its impact extends throughout an institution. It affects all roles within the institution. An institution must be prepared to rethink its management structure and to rethink the role of faculty. Competency-based education, in this sense, is not an end in itself, but a heuristic, that forces people to reexamine assumptions. Therefore, it can be a very powerful device for bringing about improvements in postsecondary education.

Why is the Fund promoting competency-based education? The answer is clear if you examine the potential benefits. First, it establishes standards. In the labor market there is a growing uneasiness about the value of educational credentials. Research indicates that the completion of a certain number of years of schooling is not a very reliable

indicator of a person's competence or even his ability to learn. Better evidence is required to ascertain what individuals are able to do. Standards must be defined, debated, and tested against reality. This is important and the competency approach encourages it.

A second benefit should be increased productivity of our educational institutions. A part of the mission of the fund is to enhance cost-effectiveness. As long as time-based degrees and norm-referenced testing are the means for awarding credentials, there is little that can be done to improve the productivity of educational systems. Witnesses before Congressional hearings on postsecondary education say, "We really can't measure productivity." One reason we cannot measure productivity is that we have no outcome data.

A third benefit is that it expands the choices open to educational consumers. The presence of explicit standards for awarding credentials permits individuals to choose varied routes to attain the knowledge and skills needed to attain a particular credential. Work experience, volunteer participation in community service, and all other modes of learning become legitimate when we have devices for measuring what is learned.

A fourth benefit is the improved access to valued credentials. There are too many people, particularly minority individuals over the age of 25, who have acquired skills through employment but who have been denied access to education and therefore access to occupational mobility. A classical case involves paraprofessionals. As a result of pressures from the "war on poverty" and the expansion of social services in the 1960s, social service agencies trained and hired paraprofessionals. However, these people typically were locked into these jobs and even though they often acquired professional skills they could not advance because they didn't have a professional credential. I think that efforts to help people break that stalemate are exciting

A fifth benefit is the enhancement of institutional quality. The competency approach provides a process for planning, designing, and selecting learning experiences. People who argue that competency-based learning reduces education to "training," have not looked closely at those programs where true competency-based education is being implemented. There is excitement and enthusiasm and creativity in these institutions. I often wish that I could take the critics and load them all aboard a plane and take them to Alverno College, or Florida State University or to The University of Toledo, and expose them to that excitement for just a day or two. It is very contagious.

A sixth benefit comes from reducing the competitive character of schooling. That is obviously a value judgment, but it is one that I strongly believe in. The system has become too competitive and the rules of competition have become more important than the definition of valid standards. Individuals should not be judged by their performance relative to their peers or, for that matter, by how fast they acquire the skills. They should be judged on their performance in relationship to clear standards of attainment. It seems to me that the competency approach offers a way of resolving the terrible conflict between the concern for equity, the need to reward merit, and the attaining of credentials for jobs.

A seventh benefit arises from the altered meaning of educational credentials. If credentials are performance-based, then they will be less capricious and arbitrary as general sorting mechanisms or gate-keepers for access to specific employment opportunities. There is a school of thought that says, "down with credentials, destroy credentialism." I feel that that position is somewhat foolish. It will not happen; so the next best thing is to ensure that credentials are closely related to jobs or to the roles to be performed, and that they are accessible to all who possess the requisite skills.

The seven benefits described above are a list of potential outcomes. The results are not in on any of these issues. One cannot say at this point that competency-based education will in fact bring these results. These are claims not conclusions. We simply do not have sufficient experience with these programs to know whether they are more cost effective, whether productivity is enhanced, or whether they can produce graduates who will perform as well or better than graduates of other programs. There may be a few institutions that have data that address some of these questions, but definitive answers are not yet available.

I become concerned when people want immediate evaluation results on competency-based education. They say, "Let's do a study on the competency-based approach and determine whether it works or not." Well, that isn't the way things happen. You must have an operational program and you must have graduates before you can really tell whether the approach makes any difference in quality or cost. There is a need for a fair field test before one can judge whether the whole thing is worthwhile or not.

Tom Glennan has written about those innovations that have slow beginnings. They start out slowly and then finally catch on and take off. If you went in to evaluate such a program in year two or three, you would not find positive results — only developmental chaos. But if you came back in year five or seven you would find a much different set of outcomes. Perhaps competency-based program development is an innovation of that character. It requires time to work out the bugs. We must have programs installed that seem to be plausible and we must follow their graduates into the field. You cannot do that in a year or two.

What have we learned at the Fund from our three years of experience with competency-based learning? The first lesson is the danger of promising too much and going too fast. We feel that efforts to mandate performance-based

programs at the state level or to write specific competencies into legislation is premature and should not be encouraged. Our position is that we need to encourage variation at this point. We want to encourage a variety of approaches to outcome-oriented education. We do not want to lock the system into a particular model or approach.

The second we have learned deals with the problem of specifying competencies. We have learned that there are two traps that most people fail to avoid. The first one is impatience. Proposals are submitted which state: "We want to develop a competency program in early childhood education. Between August 15 and October 1, we will bring a group together and we will identify all the necessary competencies." This is naive. It takes considerable time for a department or program to reach a viable and defensible consensus about what ought to be in a program. There is also the error of design. If permitted, some academics will discuss and refine competency statements forever. In a liberal arts program you can argue endlessly about the essential competencies. At some point someone has to say, "These are our working hypotheses; this is the set we are going to begin with. We could refine them more. They could be more precise. There is still too much overlap in the statements. But we are going to go forward with it, and we are going to implement a program. Once it is running, we will oil the squeaks as they appear."

A third thing that we have learned is that the development costs are significant. It takes considerable released time for the faculty. It takes expertise to develop the assessment process. It is not something that most institutions can do on their own. However, there is a related problem. Sometimes programs that are developed with grants are designed so rich that they cannot be sustained when the grant is gone. You must consider the difference between development costs and operational costs so that you can survive when the external funding is gone.

That leads me to yet another observation. There is a tremendous need for less expensive modes of assessment. I am excited by the use of simulation and by the use of situational observation in assessing performance. They are undoubtedly the most desirable modes in many cases but they are also very expensive. They are expensive in terms of personnel time, equipment, and design. We need to put resources into the development of cheaper ways of assessing competencies. Efforts are being made to develop paper and pencil tests of performance that can be constantly revalidated against a set of simulations or observations.

One final observation is the necessity of protecting legitimate faculty interests while seeking more efficient program operation. The faculty have career and professional interests that can be threatened by reform. In this regard, there are two problems that develop in competency-based programs. One is the burn-out problem; after two or three years of effort you find faculty who are walking zombies. They have been working sixty and seventy hour weeks and their families, their teaching, and their scholarship suffer. A related problem concerns their professional development and mobility. Whether you are a sociologist, economist, or chemist you need to keep abreast of your own profession and you need to continue your own research. You have your own professional goals in that area. It is hard to do that when you are spending most of your time refining competency statements, developing new curriculum modules and then being burdened with the problem of advising confused students. Competency-based education does not require less labor than the traditional method. Quite the contrary; the competency-based approach demands more faculty time.

My perception is that competency-based education works best in professional programs. That is, it is easier to design a competency program when you have some external reference that acts as a gyroscope for the specification of competencies and provides a way of testing them against

reality. The Fund is supporting programs in law, nursing, medicine, public administration, social work, and teacher education. We also are interested in the reform and the revitalization of the liberal arts and general education, and are supporting a dozen efforts to redesign such programs in a competency-based format. Yet it seems to me that the path to development is through the professional programs and then back into the liberal arts. It is in the professional programs that it is possible to identify the common or transferable competencies that should become part of the agenda of liberal arts education. I am not suggesting that developments in the liberal arts must await success in professional education. On the contrary, I think we have some interesting programs underway and I believe we should continue to support them. However, I think that development in the liberal arts will be slower and more controversial and it will be affected tremendously by what happens in professional education.

Finally, I must remind you that this is not the new educational penicillin. This is not the Salk vaccine or a cancer cure. Some claim it is a panacea and some get angry because it isn't. There is no model of competency-based education that will prescribe precisely how to do it on your campus. All we have are some guidelines for designing your own model. The competency-based approach is a mind-set about education, a mind-set that focuses on the outcomes, and which then has impact on the whole program. It requires enormous effort and the benefits will be slow to materialize but we believe they will be worth it.

II.

JONATHAN LIVINGSTON STUDENT: COMPETENCE FOR WHAT?

Gary A. Woditsch

Vance Peterson and his staff have a winning way with session titles. When I read this one, I was pleased with the imaginative phrase, "Jonathan Livingston Student," and the terse question, "Competence for What?" But my pleasure quickly transformed into a kind of awe as the intimations of the title began to seep through. Under the easy words lie some of the most precipitous issues facing the competency-based movement, and indeed all higher education. I'd like to try, briefly, to expose some of those issues and react to them.

First, I need to share with you my meaning for the word "competence." I think of it as a close surrogate for the word "capability," and we use both words to ascribe a certain quality to purposive organisms, most usually (but not exclusively) fellow human beings. When an organism commits itself to achieve something, and does so efficiently with a minimum dislocation of itself and its environment, we tend to view that brief history of purposive action as "competent." Perhaps we witness the same organism pursue a series of similar goals, and though the circumstances are somewhat different in each case, it meets success in a manner that again and again wins from us the description "competent." By a sort of intuitive statistical process, we find ourselves inclined to assign an attribute to the organism itself — we say it possesses a certain "competence," and by that we mean that it is disposed to meet a certain class of demands efficiently. So the cat is a competent mouser, the woman a competent executive, the man a competent short-order cook.

If we can agree that this is a reasonable usage of the term, note two characteristics of that usage. First, we normally assign the term to an organism or individual on the grounds of *past performance*. Sometimes we extend the term in a promissory fashion, as in, "that cat ought to be a competent mouser." But these are speculations. We bestow the term for real on past performance. I point this out for later contrast with the aspirations of competency-based education, which in some ways wants to make a *pre*-performance bestowal of the term, as in, "This woman, because of her educational experience, will be a competent executive." And where competency-based education is reticent to make such assertions, society is not reticent to make such demands. One message from society that clearly penetrates the increasingly frayed insulation of academe is, "We want you to send us competent doctors, competent lawyers and social workers, competent engineers, etc." So society expects a pre-performance rating. That's what certification is all about.

The second characteristic of our use of the word "competence" is that what we label with it is a transitive, and hence relative, quality of human behavior. We need to grasp three things before we ascribe competence: 1) The behaving organism, 2) the demand it is striving to meet, and 3) if and how well the demand is met. Change the character of any one of these three facets of the process of achievement, and you change the criteria for competence. So if we want to respond to the interrogative title of this talk, we need to determine the kind of creature Jonathan Livingston Student is, the demands he strives to meet, and how well we expect him to meet them. Then we can be a little less than arbitrary in responding to the question, "Competence for What?"

Well, what kind of creature *is* Jonathan Livingston Student? There is a certain trend afoot these days in answering such questions, and for our purposes, I think an understanding of the trend will be more valuable than a recitation

of the galaxy of answers it produces. It's the trend to describe things in terms of aggregate norms.

Among the many ways man has sought to describe his world, one that holds strong vogue is to take many examples of something and inspect them to see what they have in common. The method is particularly dominant in the social sciences, which through their statistical models and aggregative techniques have given us some powerful dipictions of man. What I want to observe, however, is that those depictions are predestined to be mundane, and to exhibit about man what is, to use Webster's phrase, "pragmatic, transitory, and ordinary."

Imagine, for a moment, all of mankind strutting its global stage. Now bring to that incredible scene those perspectives of the social scientist that throb in all of us. We will note that among all men, some few are exceptionally creative, some few brilliant, some few outstandingly principled, some remarkably selfless and some supremely motivated. We know because these few *differ* from the many. When we search the scene for what is normative in the human saga, the arithmetic tells us that most men are not remarkably creative or intelligent, tend to be self-serving, and vacillate morally. When we look at the bulk of humanity, we witness the placing of safe bets, the search for short-term gratifications, and the pursuit of low-risk futures. This is the scene the social scientist comes upon, with his propensity to classify, count and establish mean scores. "Mean scores . . . " The phrase fascinates me. It is astonishing that a technical term should connote so ironically and perhaps prophetically. When we aggregate man, we do in fact arrive at a "mean" description of him. As we proliferate such descriptions and use them, as we talk about the character traits, opinion profiles, satisfaction curves, migration trends, mobility patterns and aptitude scales, our consciousness almost irrepressibly boils it all down to an image of "normalcy." And normative descriptions of behavior in the

aggregate subtly become parameters for what is normal and to be anticipated in the individual. Finally, what is "normal" becomes society's standard.

The real social scientist claims only to be descriptively normative, but the social scientist in each of us tends to be prescriptively normative. So those members of the flock who admonished Jonathan Livingston Seagull about his deviations did so because his behavior was "not normal," in the sense of not fitting the pattern of seagull behavior. Respecting those norms, Jonathan was clearly incompetent. The assumption is that the normal seagull is a cross-section of the flock, just as our assumption seems more and more to be that man and his problems are what opinion surveys, Nielsen ratings and the like make of them. So the real question is, do we want Jonathan Livingston Student to be a competent member of the flock? A standard, M-1 seagull? Or do we want him to be a transcendent creature, with capabilities beyond the dominant norms who can in his own life outstrip lives led before? Do we choose — and it clearly is a matter of what we choose — do we choose to let "competence" reference the standards of the many, or of the few?

There are emotional approaches to an answer, and there are some that are fairly hard-headed. I think a hard-headed approach requires a look to the future. We know that as man's power over nature increases, the future is less and less a function of what actuarians call "Acts of God," and more and more a function of how man wields that power. How man chooses to behave today is the best predictor of tomorrow. Now, if what we want tomorrow is *yesterday*, we can make a good cause for defining competence in terms of what is normative in human behavior today. In ages past, when yesterday, today and tomorrow could be counted on to be much alike, the past could present a fairly straight-forward pattern for the future — the father's problems would be the son's, and the mother's would be the daughter's. But if what

we want tomorrow is not yesterday, but rather some unprecedented combination of yesterday's successes and today's hopes, the way most men behave cannot be our norm. For a humanity that envisions a future better than its past, those capable only of replicating the past must be judged incompetent.

We may have established a case for how *not* to gauge competence, but the real question burns more intensely than before: How *do* we gauge competence? Remember Jonathan Livingston Seagull's mystical mentors? When Jonathan succeeded in breaking through to new dimensions of experience, and was caught in the delirium of tasting new capabilities, he came upon the beautiful silvery super-seagulls. The super-seagulls had a very special function. They sanctioned the *extra-ordinary* as Jonathan's proper norm. I think that is the clue to how we set competencies. That, and one's own experience, is all one needs. Simply look for what is extraordinary in your own behavior. If you are anything like me, you will come up with something like the following list:

When I use my best critical faculties, submerge my biases, and submit my conceptions to sustained and critical reasoning so that they go where their real worth takes them, that's extraordinary. The results, too, are extraordinary, because it is only when I demand precision of my thoughts that their weaknesses are exposed and I confront the need to change them.

When I use language to communicate my meanings lucidly, that's extraordinary. I'm too often satisfied to let words convey a vague impression of what it is I mean. At times — more numerous than I should care to admit — I use language to obscure my meanings.

When I do in fact shape my desires with concern for the good of others, and act accordingly, that's extraordinary. I tend to the more comfortable option, which brandishes

its immediate benefit to me and obscures the costs to others. That choice ends up being costly too, but -- and here's the appeal no sucker can resist — you pay later.

I could extend the list through the afternoon, but I think you see where I'm going. The parable of Jonathan is pointless unless we take it to mean that Jonathan was an ordinary seagull, and that ordinary seagulls are capable of extraordinary behavior. The tragedy is that they are not prone to exercise the capacity, any more than are we.

At this point, someone might say, "All right, I'll even grant you that critical thinking skills, communication skills, value clarification skills and so forth are comparative rarities on the contemporary scene. But what's new about setting them up as focal competencies for the educational venture? Higher education has prized those attributes since time immemorial."

I would knock my straw man down by saying, "That's just the problem. We've *prized* them." One could easily imagine a sequel to *Jonathan Livingston Seagull* in which the flock congregates beneath his statue periodically and recites a litany of his accomplishments, only to disperse for the day's herring catch and the interminable squabbles over nesting territories. Those who recite the litany correctly over a period of time may even earn a degree. Our educational tradition has its parthenon of greats who in their work personify some of man's finest capabilities. But I submit we spend more time idolizing than developing what they personify.

Here I side four-square with Dewey. Knowing is doing. One does not *know* Plato by rehearsing the fruits of his critical acumen. One *knows* Plato by doing Plato — by facing real dilemmas with one's own mind as Plato faced real dilemmas with his. When you've done that, you've learned Plato. Before you've done that, the best you can claim is

that you've cultivated a taste, an admiration, an idolization of him.

When one carefully inspects the curricula and pedagogy of higher education, one experiences the cumulative shock of discovering that they exhibit very little understanding of how to bring a student to *do* Plato. As with curricula, so with ourselves. We are not inclined to explore the dynamics of our own higher order abilities. The history of science, for instance, is frought with misleading testaments by scientists about how science is done. Having laboriously mastered an ability, we are content to leave its makeup implicit, and simply employ it. All our academic disciplines *exhibit* man's higher order competencies in the sense that they display the products of their operation, but the disciplines are inarticulate — even unconcerned — about how those competencies can be best ignited and matured within the learner.

This is, of course, the heart of the challenge that confronts CBE. In its many forms, competency-based education proposes to martriculate competent graduates. When it makes this proposal with an eye toward behaviors and roles currently sanctioned by society, CBE doesn't differ overly much from our better traditional examples of vocational education. The task is one of shaping students in accord with some societal blueprint. But when CBE proposes graduates who are capable of leading productive lives in a radically changing world, whatever the blueprint, it sets its foot where there is no path.

I can imagine only one way to break ground in this direction and still avoid litigation under the truth-in-advertising clause. That is for CBE to in fact embrace and focus upon the extraordinary capabilities we've just sketched — to seek the development of critical thinking skills, communication skills, problem solving skills, information processing skills, and value clarification skills. In short, to pursue tenaciously the development of those capabilities mankind has been known to employ in its best moments.

The assumption (with substantial supporting evidence) is that acquisition of these extraordinary competencies entails an improved capacity to identify and master the many more specific competencies that society in its various moods will come to require of Jonathan Livingston Student. We need to build Jonathan's generic capabilities; he will then apply them in whatever specific shape his situation and his purposes require.

We have here something very close to the rhetoric of general, or liberal, education. The only difference is that competency-based education, while nodding compassionately with the rhetoric, keeps asking about results. If traditional general education responds at all, it does so by somewhat grumpily allowing that it is not much given to identifying generic competencies and exploring how they might better be developed. The shift from rhetoric to results requires a major shift in educational psychology.

One way of talking about the shift is to describe it as a shift from the Idolized Attribute to the Target Competency. The fate of an idol is to now and then receive ministrations — to be elevated, extolled, praised — but largely to be ignored. The fate of a target is to be shot full of holes and, having improved the marksman, to give place to a new and more challenging target. Given the low state of our current understanding of how to develop generic competencies, this imagery is appropriate. The general educator who gives his comforting and familiar nod to the idol ("Of *course* critical thinking is important, and of *course* I develop it in my classes") needs to become the general educator who admits that his target is unclear and his aim uncertain. Once he admits that he does not know how best to develop generic capabilities, he will be on track toward developing them better.

He will also, however, need to revise — perhaps *reverse* — his sense of what is most challenging about the instructional mission. If he is today's typical department member, he teaches at an institution which equates general education

with a stable of lower-division group requirements. Courses in that stable are obviously the simplest and hence easiest courses to teach, since they merely transmit introduction to the disciplines. The instructional challenge supposedly escalates as one approaches the doctoral seminar.

A CBE program that embraces the development of generic competencies puts things just the other way around. The skills and insights of the professional instructor will never be more sorely tested than in the effort to advance the cognitive skills of his entering freshmen. To do the job well, no instructor would enter a freshmen classroom with other than what must be called an "experimental" frame of mind. "Experimental" is meant in the strict sense, which entails that the instructor define his tentative aspirations for that encounter more carefully than if he were approaching a "sure" target (like a graduate seminar in his own field). He would define them to insure that the expectations he harbors for his own instructional activity are both precise and explicit. Only then will he be able to tell when his efforts go astray, so that he can shape better aspirations for the next classroom he enters. He needs to be specific enough about outcomes to enable *some* evidence to register when his aspirations or his mode of attack misfire.

If there are vital juices in the CBE movement, they flow from a professional attitude that sees instructional activity as perennially problematic — always in need of reconstitution in light of new and deliberately sought evidence. That is the point of CBE's emphasis on specifying "outcomes." We do not specify instructional objectives so that we can celebrate having defined, once and for all, our instructional purposes and activities. We specify because specification prompts examination and enables us to better reformulate and reassess this business of achieving more of the human potential.

It's an attitude that tends to ruffle feathers, particularly

the slick plumage of those of us who would appear all-knowing. But ruffled feathers may be our smallest expense. If we wish to deliver to Jonathan Livingston Student the competence for extraordinary behavior, our whole flock may have to behave a little extraordinarily itself.

III.

ASSESSING COMPETENCE AND COMPETENCY-BASED CURRICULA

Frederick J. McDonald

What I'm going to try to do is communicate a concept that relates to how one might go about assessment. I want to start out by relieving myself of a bias—an ignorance—that I think is getting in the way of building effective assessment programs.

Dr. Corcoran referred to it when he talked about the tendency of people to write long lists of behavioral objectives as the way of establishing competencies. I've been bothered by that approach for a long time. The reason I've been bothered is because I think that it's irrelevant to understanding the phenomena that you're trying to assess. I'd like to illustrate that point by talking for a moment about B.F. Skinner. What I'm going to discuss, very briefly, is his methodology for the study of behavior in order to contrast it with what is called "behaviorism" in the CBE movement. Quite frankly, what goes on in the competency-based movement I do not regard as being behaviorism, and I wish people would quit referring to it as such. People who are respectable behaviorists are embarrassed by that association.

Why isn't it behaviorism? Lets go back to B.F. Skinner in the days when he was first starting out. What he did in a very real way represents a methodology that I think ought to be used in developing assessment. I'm going to try and draw an analogy between the behavioral analysis of behavior when we're dealing with pigeons, and that methodology extended into behavioral analysis for looking at the assessment problem. I'm not going to come out with a long list of competencies because if you follow the methodology

that I suggest you'd probably end up with relatively few competencies.

Now the point that everybody overlooks in Skinner's methodology is the first thing he did, which was to radically simplify the environment for studying behavior. He built the Skinner Box. He built it so long ago most people forgot about it until it was reincarnated in the form of that special environment for children. Why did he do that? He did it simply to get a better look at what people did under a restricted set of conditions. Think about that particular box; you'll recognize how restricted it was. If you had a rat in the box, basically the rat could not do very much, except stand up in the corner and walk around in the box. Or if it was a pigeon or a chicken, about all the pigeon could do is engage in some kind of movements.

One of the first steps in the analysis of behavior, after having placed the person or organism in an environment where the conditions of the environment were known, was to find out what kinds of things they did in that particular environment. From that point on, it was possible to modify the behavior.

Skinner didn't sit down and write out a list of responses of the organism. He did not engage in the semantic analysis of competence. He did not engage in the semantic analysis of behavior. What he did was observe what people did under a specified set of conditions. I think that aspect of methodology of behavioral analysis is what is implicit in all assessment. In fact, when you construct an assessment system you do two things. You ask, "What are the conditions in which you will look at what a person can do?" And secondly, "What do people typically do in those situations?" What is the maximum type of performance that you can expect?

Let me take an example, and I will deliberately pick a difficult one. Suppose that I want to assess whether liberal arts graduates can think rationally about political problems.

Now instead of figuring out what the responses are that constitute rational thinking in political situations, which is the way most people go about defining competence, what I would propose as an alternative is to begin by defining the situations in which you expect people to think rationally. If you do that you may first of all discover that there aren't any. Which then confronts you with the problem of values. Is it really worthwhile trying to get people to think rationally? As educators you may say, "Yes it is, because we want to improve the world." But if you really were to begin trying to specify what kinds of situations require rational thinking what would you come up with? You certainly aren't thinking about situations at which people sit at a desk and take paper and pencil tests, because I don't know anybody who demonstrates his ability to think rationally in political situations by checking off multiple choice items.

One prototypical situation would be one in which people have value commitments and they are struggling to achieve something. They want more of something, therefore somebody else has to have less. In that context what do you mean by rational thinking? Rational thinking may turn out to include such things as being able to identify what the other person's goals are, being able to negotiate with the other person so that you get as much as you can without making an enemy of the other person, and so on down the line.

Now the principle I'm proposing is that you begin with the situation and *within the context of the situation* you then define the boundaries of the kinds of performances that are relevant in that particular situation.

Let me take one other example, and again I'll pick a difficult one. I hope I don't oversimplify the problem. Most of us are interested in the development of cultural appreciation. What are the contexts in which you see people manifesting a cultural taste? Well, since you're talking about cultural taste you must talk about choice situations. That is, people manifest their cultural values by making choices of doing

X rather than Y, when X is regarded as culturally better than Y. They go to Lincoln Center and attend an opera in preference to going to a rock festival. Some type of cultural situations of that kind must exist. And within that context what kinds of performances or behaviors would you expect to see? Then that would then define the matrix of competence that would be relevant to appreciating the particular cultural situations, or achieving a particular cultural goal, that you would regard as a desirable outcome of education?

There is another advantage of organizing assessment systems this way. And that is when you think in this particular fashion, it leads you into the development of appropriate instructional motives. That is, the two are intimately tied together. The curse of assessment in this country has been the divorce of the assessment process and the instructional process. They are loosely tied together insofar as the assessment process is supposed to be somehow related to the outcomes of the instruction. But rarely do we set up an educational system in which we look at the outcomes in relation to the design of the instructional system. In reality, the assessment system is just a variation on the instructional system. Thus, if you're trying to develop cultural appreciation you have to know enough about what that means in order to design a good instructional system. And that same kind of knowledge is the same kind of knowledge that helps you develop the assessment system.

So what I'm suggesting to you by way of an example of behaviorism is that one of the first ways to understand human behavior is by spending a lot of time looking at people who are representatives of the kinds of outcomes that you are interested in. That may be the technology for assessment initially in its early days, for rethinking everything is always to begin by saying, "Here is an example of a person who has the kinds of competencies that, in fact, we say are desirable," rather than ask, "What do you mean by rational thinking? What do you mean by cultural appreciation?"

Find somebody, or somebodies that have taste, who are reasonably rational kinds of people in political situations, and observe what they do and how they perform in certain kinds of contexts. Use the method of matching to a criterion as the method of assessment. Measure the degree to which the products of education are like a representative of the present outcome, the degree to which they acquired the competence. That really is a much harder way to design an assessment system, and I'm fully aware of all the practical problems involved.

What I would like to see is any liberal arts educator spend a year finding the most representative examples of what the consequences of a liberal arts education are and finding out how that person or persons act and especially how they act in certain kinds of situations.

The field that I've been associated with is psychology. A number of years ago, there was a conference on creativity in psychology held at Aspen. One of the outcomes at that conference was the conclusion that if you wanted to develop creative researchers in psychology, the way to do it was to take the people who were being inducted into the field and let them associate with people who already were creative. That is, if your goal really is to produce people who are original, then you have to put them in situations where they can see originality. The model criterion of competence thus becomes the people who are most original. It's that kind of idea I'm suggesting to you as an approach to the assessment system.

The goals of a liberal arts education are broad goals. They represent very fundamental changes in human beings; and not everyone who gets a liberal arts education comes out the way we'd like them to come out. But some people do. Some people obviously benefit by exposure to a liberal arts education, and if they are the representative examples of competence, then my suggestion is that the first step in building an assessment system is to study them and use them

as the device by which you define the criteria. That always will involve a combination of looking at them in certain kinds of contexts and situations and seeing how they respond to them—how they think; how they talk; how they act. All the other problems are technical problems of reliability and all that sort of thing. The first problem is validity. Without it, reliability doesn't mean anything. What we need to do in the assessment process is worry about the validity problem: the reliability problem will take care of itself.

IV.

ORGANIZING THE COMPETENCE-BASED CURRICULUM

Robert E. Knott

If any of you have read John Silber's recent article on "The Problems of Public and Private Higher Education," or as he preferred to call it, "Independent and State-Governed Higher Education," you've seen his reference to the "tremble factor." Coming from an institution which is now directly involved in trying to implement one of these things called a "competency-based curriculum," I am presently a refugee from the "tremble factor." Silber derived the concept of the "tremble factor" from the old Roman law where the architect who built a great arch was required to stand under the arch as the scaffolding was removed. It put a premium on making sure that the arch held, and Silber argued that that's one good reason why the arches still stand. We at Mars Hill College are in the process of pulling some of the scaffolding away from the recent curriculum construction and I guess that's why I'm here today and not there.

For those of you who are considering a competence-based curriculum, or looking at some of the consequences, I would begin by pointing out some of the general stages I have observed in the development of innovative programs. First, the stage of general enthusiasm; second, disillusionment; third, panic; fourth, a search for the guilty; fifth, punishment of the innocent; and finally, praise and honor to the non-participants. Experience suggests that the implementation of a competence-based curriculum can often parallel these stages quite closely.

As a way of beginning, let me first clarify the concept of CBC as I am using the term. First, competence is a state

of having requisite abilities or qualities, meaning that any educational institution can come up with a set that is appropriate for it. Second, a curriculum is a set of designed learning experiences. So when I use the term, I mean simply that a competence-based curriculum is one in which the competences expected of all graduates are defined, agreed upon, and publicly stated, and that there are sets of learning experiences designed to assist the student in achieving those competencies. I use the term in that very general sense because there is a tendency today to suggest that only specific types of instruction are consistent with a CBC. I purposely want to leave the instructional design open.

There are three functions that are involved in competence-based education. They are three *distinct functions:* the stating of the competencies, the organization of the actual learning experiences which form the curricular structure of the institution, and the development of sets of evaluative criteria which define the achievement of competencies. Figure 1 outlines a set of competencies that we are working with at Mars Hill College. The document that describes these is quite lengthy and each of these competencies is spelled out in detail. There are seven basic competencies in what would normally be considered general education or general studies, and there is a seventh competency of a specialized nature.

FIGURE 1. MARS HILL COLLEGE ALL-COLLEGE COMPETENCE STATEMENTS

I. A graduate of Mars Hill College is competent in communication skills.

II. A graduate of Mars Hill College can use knowledge gained in self-assessment to further his own personal development.

III. A graduate of Mars Hill College comprehends the

major values of his own and one foreign culture, can analyze relationships of values between the cultures and can appraise the influence of those values on contemporary societal developments in the cultures.

IV. A graduate of Mars Hill College understands the nature of aesthetic perception and is aware of the significance of creative and aesthetic dimensions of his own experience which he can compare to other cultures.

V. A graduate of Mars Hill College understands the basic elements of the scientific method of inquiry, applies this understanding by acquiring and analyzing information which leads to scientific conclusions and appraises those conclusions.

VI. A graduate of Mars Hill College has examined several attempts to achieve a unified world view and knows how such attempts are made. The graduate is aware of the broad questions that have been posed in the history, philosophy and religion of Western Civilization and can assess the validity of answers given to these broad questions in terms of internal consistency, comparative analyses and his own position.

VII. A graduate of Mars Hill College is competent in an area of specialization.

Simply stated, competence areas are areas of knowledge or skill specialization. They have varying amounts of curricular credit depending on what is required to achieve each one, such as time and effort necessary to achieve them. Many of these, from communication skills through self-knowledge, are very traditional in the way they are stated. There is one dealing with values and culture, one dealing with aesthetics, one dealing with the sciences, and finally

one dealing with a synoptic world view of the humanities. Those of you familiar with Philip Phenix's book *Realms of Meaning* know that the selection of these was greatly influenced by his discussion. They are, in fact, modifications of his basic areas of curriculum.

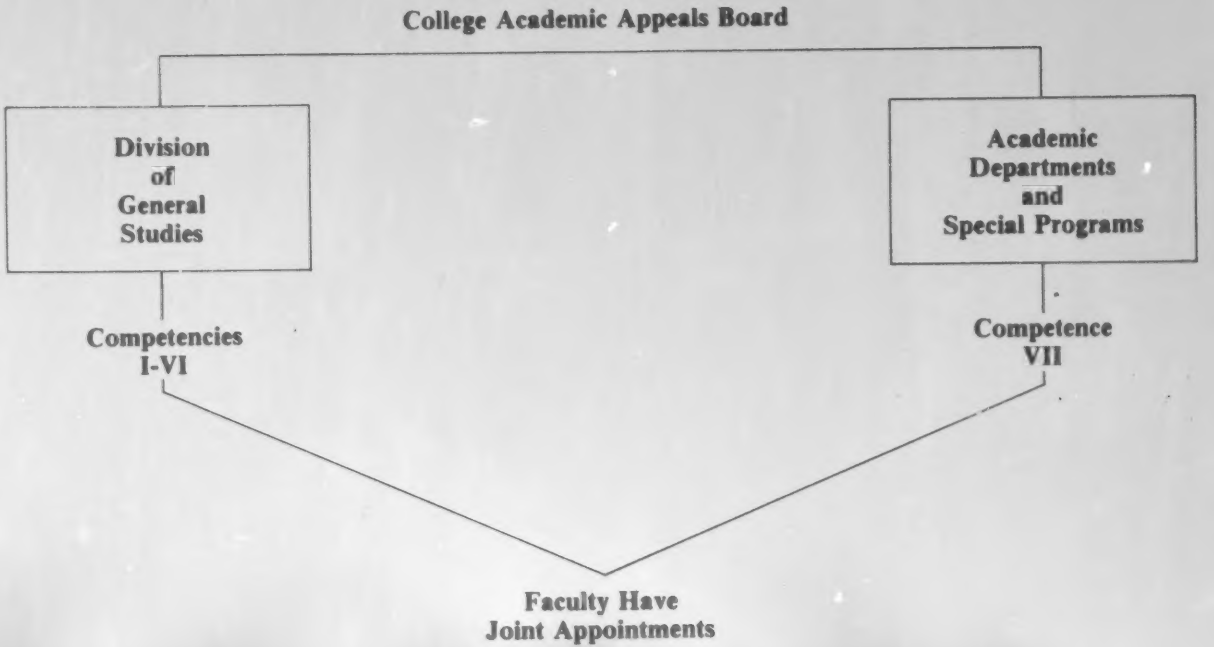
So how does one go about organizing an institution to develop competencies in students? I think the organization of the curriculum must reflect the needs and priorities of the institution that is setting them up, and different competence-based programs will have different structures and processes.

The topic of the conference is "Truth or Competences?" I must say that if truth is thought of as a universal or quasi-eternal end of education then competences are on the relativistic end of the spectrum. I am not personally convinced that there is a set of generic competencies that everyone must master. If choice of competencies is in order, then there must be some kind of organizing scheme for dividing our energies and beginning to think of particular institutions and their different curricula — which competencies they deem important and the problems they must deal with in setting up a curriculum based on them.

At Mars Hill we created a separate division of general studies. The division of general studies does not consist of departments. It consists of all faculty who are contracted to work on the general college competencies either in designing competence statements, setting of assessment criteria, or actually providing learning experiences for students. (Figure 2.)

The key to interpreting this particular diagram of our organization is the point at the bottom where faculty have joint appointments at our institution. We needed to get some faculty movement toward implementation. We had a whole range of competencies, often unrelated across the college, and people working in different ways on different

FIGURE 2. GOVERNANCE STRUCTURE MARS HILL COLLEGE



ones. We finally had to devise a contract system where faculty responsibilities were spelled out rather explicitly. Almost all faculty members have joint appointments between general studies, academic departments, and programs, and know explicitly where energies are to be directed.

I said that in designing curricula, such curricula should reflect the priorities of given institutions. At Mars Hill, general studies was probably somewhat like other general studies programs that you have seen. It consisted of distribution requirements where one chooses one course from column A, two from column B and puts those courses together so that somehow a worthwhile educational experience results. We had assumed that we were generating general competence all along. When we began to take the outcomes of our program seriously and tried to state them clearly so that everyone knew what we were about, we soon found that general studies was really a hodgepodge of courses offered by departments for their majors and the general student was allowed to partake of them in the name of general studies. The redesigned organizational scheme called this curriculum into question and serious debates began to emerge among faculty who were contracted to the different competence areas.

After the organization was restructured, each of the areas in general studies had to be organized as well. Under general studies we created the positions of associate academic dean and area chairpersons. These work with those faculty who are contracted to them for one or two or more courses during the year. Each competence area also has an assessment team responsible for assessing students in that area. The associate dean, chairperson, faculty, and assessment team compose an organizational unit of general studies. Assessment teams are composed of people from the faculty and people from the community outside the college. Each assessment team has places for students who have moved through the program and demonstrate that they have that

competence. Mars Hill College will begin to put students on the assessment teams as they demonstrate competence. We're still in the earlier stages and we have very few students who have demonstrated any of these competences.

The assessors work with the contracted faculty who are offering the learning experiences. First, the competence statement is set. Then, the criteria are specified and the assessment team is charged with the assessment of every student seeking certification in that competence area. The problem of organizing for assessment is a difficult one. We tried to avoid a situation where every student goes before an entire assessment team in order to demonstrate that he or she has this or that competency. We also tried to avoid the alternative found in our present curriculum that when a student passed any course he or she was automatically considered competent.

We tried to find a middle ground. We found institutions that had encountered problems using either alternative. We decided that the assessment teams, rather than directly assessing all students, would be responsible for training assessors in their competence area. Faculty members and people from the community would be trained as assessors. Then assessment authority could be delegated to these trained people. When they make a judgment, it is often one person making the judgment. Sometimes it may be two or more people making a judgment, depending on the area of the program. When that judgment is made it is recorded on the student's records and that is the certification of competency that we require.

The major task in organizing was to get these assessment teams to understand that their responsibility was to direct, not *do*, the assessment of students. We looked at several programs where students were coming in front of four, five, or six people and trying to demonstrate their competence several times. The anxiety produced in students

seemed detrimental to educational progress and we tried to avoid creating it in our program.

Assessment teams are responsible for the certification of students, though they are encouraged to delegate such authority. Let me give an example of the control exercised by an assessment team which has delegated authority.

Let's assume that I as a faculty member have authority delegated to me to assess a student in the synoptics or humanities competence. I assess students in a course I have been teaching. Then I submit, upon request from the assessment team, the instruments or a description of the procedures and criteria I have used in assessing those students. I submit some sort of document that shows the assessment team what I have done in making those judgments. This document also includes the judgment that I have made on that student. The assessment team then reviews a sampling of my decisions.

The assessment team members, once they delegated the authority, have to live with my decision at that time. They may revoke that authority in the future if I'm not living up to what they think I should be doing in the assessment area. That's where the teeth come in controlling the assessment of students. Under the program the assessment team reviews my work semester by semester. (At Mars Hill College we still have a largely semester-based calendar. We don't have a program where students start in at all different times during the year).

The review process then may go into an appeals procedure. A student may react to my assessment and say he disagrees with it and wishes to have the decision changed. Each assessment team then has a written procedure which that student may follow in approaching the assessment team for redress. If the student says, "I challenge the assessment decision and I would like to discuss it and have it reviewed," the assessment team will then set up a hearing

with the student, the teacher, and with whomever else needs to be present. If that doesn't satisfy the student, we have a college appeals court, called the Academic Appeals Court, made up of faculty, students, and one person from the community. This court will determine whether or not to hear a case appealed to them. If the court doesn't think it is worthy of appeal, it supports earlier decisions. If it hears the case its decision stands as final in terms of assessment. To this point in the program we have not had any serious problems over assessment. We have had some students come to the assessment teams for review, but for the most part cases have been resolved at that level. We have not yet had to call in the all-college Academic Appeals Court.

Let me say a couple of things now about the competency-based curriculum in terms of the priorities of the institution. I tried to show that we put emphasis on taking general competencies seriously. We always have taken the major programs with a great deal of seriousness but they are also undergoing redefinition in terms of competencies. The general competencies created the most problems in our institution once it became visible that that was where the new energies were being directed.

The competency-based curriculum seems to me to do the following things:

- First, it forces clarity of the curricular outcomes. There is no way to avoid that if you take the competency-based curriculum seriously. This task alone, as you can well imagine, took two-and-a-half years at our institution.
- Second, it highlights the process dimensions of the educational experience.

The latter element has been something that we did not fully anticipate. The focus on outcomes actually turned attention to the process that students go through to get to the outcomes. The results of the processes used by the col-

lege to educate students are now taken with a new seriousness. We are directly concerned with whether or not it works in getting a student to the point of possessing the required competencies. We have become much more conscious of the processes that our students are going through and we are spending much time and money now in redesigning those processes. This redesign includes, but is not limited to, direct instruction. Besides direct classroom instruction there are other planned activities in our learning experiences: formerly unrecognized activities that now receive a great deal of attention from the college, faculty activities which in the past were considered of marginal significance, and activities which faculty did over and above basic commitment to instruction, which was twelve semester hours of teaching a semester. This concern with curricular outcomes forced a redistribution of faculty effort with more time given to counseling, advising, and assessing.

We found this emphasis on activities other than instruction to be something of a problem at Mars Hill College because our faculty are very much interested in instruction. That's where they get their personal reward. It's very meaningful to them, and we have had to do a whole reeducational phase in our program for the faculty so that they could begin to see that assessment, counseling, and advising are integral parts of the educational process. We had to encourage them to take instructionally related activities more seriously and put more time and energy into those efforts.

One way we restructured to get at faculty change was to redefine "faculty load." We took a "faculty load" and said that if you have a 12-month contract at our institution, you have the equivalent of 42 units. If you take a 10-month contract you have 32 units. Every program, whether a general or specialized competence area, could compute the number of units it would be working with. If it had three full-time equivalent faculty appointed and two 10-month faculty, then it would be working with 190 units of faculty

time. This procedure doesn't solve the problems of excess demands on faculty time, it just portions such time out and sets priorities on it.

The units that a faculty member is serving at the institution are figured as follows: An assessment team faculty member can get up to two units a year for serving on an assessment team. (This was for the first year and we found that that was low and that we did not put enough weight into the service of areas of assessment. Next year that will go up to about four units.) If you are a chairperson in one of these areas you can get up to about six units. A chairperson who works with a very small faculty in a very concentrated way will not receive as many units as a chairperson who works with 15 or 20 faculty and maybe 400 or 500 students in a given year. This process is extended to all activities that have units awarded to them.

The actual competence area is responsible for deciding how it wants to award those 190, or whatever, faculty units it has committed to itself. We didn't try to take into account everything the faculty member does. We didn't want to get into the hang-up of, "I'm not going to do it unless I get units for it." But what we did do is try to put some emphasis and priorities on the kinds of things that were to receive faculty emphasis. If you read through the activities you will note there is emphasis on the redesign and reworking of courses. If a faculty member is involved in course redesign they get more units for such a course than a course that has been repeatedly offered in the past. We recognize faculty direction of internships, independent study and directed readings and set some approximate units on those to give faculty credit in their workload for working with students in those ways. All of these are part of the effort to redesign and give visible emphasis to the important faculty activities. The competence curriculum, by forcing attention to curricular outcomes and the process dimensions, has led us into this type of development of a redesigned faculty workload.

We've also become acutely aware of the support programs needed to develop a CB curriculum. (Figure 3.) Let me give an example. We have a mentor program in which we assess and diagnose our students for skill levels at entry. Under the old curriculum we were sending, by a referral approach, about 75 students a year to a reading center where they were working on a contract basis to develop some basic reading skills. When we began to systematically diagnose the whole freshman class with respect to their competence in communication skills, which has a reading component, we found that over 200 of our freshmen actually needed work in the area of reading. That's in a freshman class of 450! So we're giving half of the freshman class anywhere from a small to an extensive amount of work in reading skills.

We weren't prepared to handle such a number of students. Once we diagnosed them and said, "here is your problem and here is the competence you're required to have," then we felt we were under obligation to provide the resources for them to develop the competencies. That meant we had to turn more of our faculty effort, program money and our operating budget into areas supportive of developing reading competencies in students.

Additional areas became critical for us. We established an Evaluation Center with a full-time evaluation specialist to work with our faculty in designing effective evaluation procedures for assessment of students. (Figure 4.) We developed a learning skills program which pulls together basic compensatory work in math, English, tutoring, and counseling. In the learning skills program we use our upper-level students on a contract basis to work with other students. But we also had to have professionals to staff the program.

I would like to call attention to another critical area. We found that enrichment was a major problem. The compe-

FIGURE 3. ESSENTIAL SUPPORT PROGRAMS

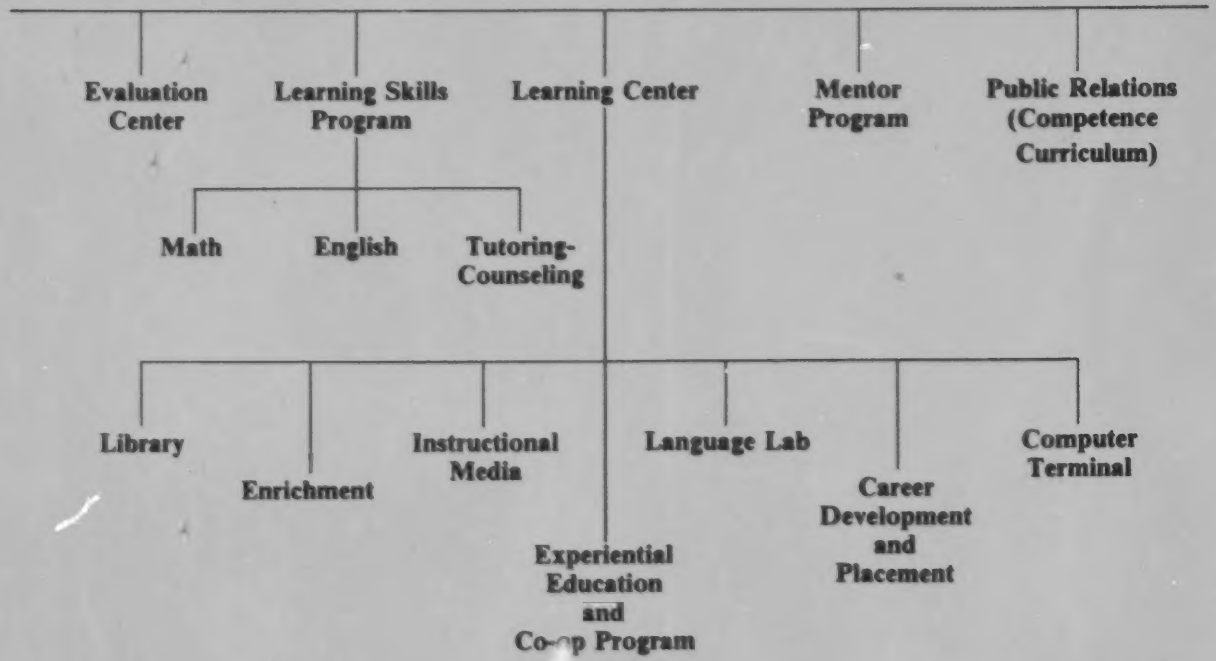


FIGURE 4. EVALUATION CENTER FUNCTIONS

1. Develop processes and instruments for assessment of students.
2. Provide resources for faculty development of expertise in assessment of student competence.
3. Design and carry-out institutional evaluation with emphasis on:
   A. Impact of competence-based curriculum on Mars Hill College environment.
   B. Impact of competence-based curriculum on Mars Hill College graduates, and
   C. Cost accounting for competence-based curriculum.

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tency-based program focuses on the minimum level of skills required of students. We spend a great amount of time in working with students to achieve those. We sensed a neglect of efforts to enrich students at the institution as they move on past those minimal level skills. We have had to put some of our faculty time and effort directly into that to stimulate such growth among our students.

The competency-based curriculum, once it's designed, looks like a pyramid which starts from the top and works out in a deductive manner from the competence statement, to the evaluative criteria, to the learning experiences. The learning experiences have great variety in them. No longer can the student enter the institution and say, "What do I take?" There's no set of courses that a student takes at our institution. It depends upon his needs, interests, and how he wants to proceed. Therefore, he has to have extensive advising and counseling.

We set up a mentor program. (Figure 5.) Faculty under

FIGURE 5. MENTOR PROGRAM

ORGANIZATION

Enrolls all new students. Mentor Groups - 15 students, 1 student mentor and 1 faculty mentor. Spans one academic year.

PROGRAM

One orientation week prior to opening of school. Several sessions over first semester to explore goal setting, decision making, problem solving, and educational expections. An intensive one semester personal development seminar. Academic planning and registration for first year.

OBJECTIVES

To provide new student a primary reference group. To orient new student to college and curriculum. To assist student in exploration of self-knowledge and self-assessment. To lead student to generate a learning plan.

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the mentor program work with new students over their first year and receive the equivalent of one course in their unit load. We carefully selected 30 out of 110 faculty to work in this program, which enrolls all new students. The program spans the entry academic year at Mars Hill College. It starts with orientation one week prior to the opening of school. In that week much diagnosis of students is done and students are led to explore different program components. Several sessions during the first semester explore goal setting, decision making, problem solving, educational expectations, and so forth. The objectives listed at the bottom of the previous list define the basic outcomes expected from the mentor program.

In summary, the above description of the redesign of the organizational structure at Mars Hill College reflects the priorities that became apparent to us as we set our goals

very specifically in terms of a CBC. It was a major learning experience for us.

After looking at a number of other programs and working with a few colleges trying to do a similar kind of thing, I find that basic change is present in all of them. It does require a rather extensive rethinking of management and organization in order to achieve success in a CBC.

V.

RENEWAL THROUGH COMPETENCY-BASED EDUCATION: FOR WHAT AND BY WHOM?

Lance C. Buhl

Too many people too often look at such movements as competency-based education, faculty development, or instructional development as panaceas for the ills we face in higher education. We need to do some reality testing of this notion of renewal. We must consider both sides of a single coin: competency-based education for what? and by whom? The progression of the following remarks mixes the responses to both questions because of a basic reality. No matter how we cut it, the fact is that for institutions to move purposefully toward educational renewal places tremendous demands on people to change. On faculty, more than on any other actors in postsecondary education, falls the heaviest burden of the demand.

The premise of this paper is that faculty are the engines of the academic enterprise. They are entrusted with the primary responsibility to define, organize, monitor and evaluate teaching. They may do that job poorly or well, but it is their job. Significant numbers of faculty, then, must commit themselves to changing the way they go about stimulating learning before student academic achievement and the assessment of teaching and learning become something more than haphazard. Competency-based education holds great potential for clarifying the teaching/learning process and, consequently, stimulating and assessing learning in powerful ways. Faculty stand to gain much by adopting its premises and adapting its techniques. The point is that unless faculty recognize the potential of, and accept, renew-

al through competency-based education, it will not work. Our task, accordingly, is to answer the questions — "for what?" and "by whom?" — in ways that will convince a large number of faculty that moving to competency-based education is both intellectually justifiable and professionally worthwhile.

The first question is fundamental. It is a question about educational values. When writing my thesis in American diplomatic history, I was concerned to explore the attitudes and behaviors congressmen exhibited toward the American navy immediately after the Civil War. Impressive was the number of times principal actors in Congress raised the issue, "a navy for what?" The question, both implicitly and explicitly stated, informed the way congressmen went about making legislative decisions. In the same critical vein, we ought to ask the question, "competency-based education for what?" It suggests a number of provocative sub-questions: Who stands to benefit? In what ways? Who will lose? Each calls for a reasonable answer.

The competency-based educational model is one that fits well within the context of the traditional, rationalist approach to teaching and learning in higher education. It does not call for a revolution at all. When we look at education critically, we simply have to conclude that competencies have always been the goal of our teaching. We simply went about asking for and assessing competencies without any great awareness about the true nature of the process. Probe your own educational training. How did you become a historian, physicist, artist, or political scientist? How did your professors gain any indication that you should join their ranks? Don't stretch for answers. Examine the nature of what you did to demonstrate your abilities (i.e., competencies) to function with the language and models of inquiry peculiar to the discipline. Turn the issue around. How do you know when your students are learning? The answer is that they are progressing the more they

sound like you do when they respond to demands you make on them for some accounting — tests, class questions, projects. The more they practice observing correctly the rules of methodological inquiry and of logical, plausible and literate argumentation about disciplinary problems, the closer they are to being educated. Education is, in fact, a training process. Does this connection simplify, demean or cheapen collegiate education? No. If we look closely, for example, at the rules we advance about logical, plausible and literate argumentation in the discipline, we notice that they call for a great many sophisticated cognitive skills.

To repeat, the issue is not revolution. It is a matter of doing what we in fact do with greater awareness and clarity. Ours is a public profession; we have a real obligation to define what the educational process is. Teaching for learning involves publicizing the nature of minimally acceptable competencies. In part, this obligation requires that we specify what we hope the students will be able to do at the end of a course or curriculum. We should let students know what we value and what they are expected to become as educated persons. Competency-based education rests avowedly on the specification of our values and our goals, course by course and curriculum by curriculum.

If you read only one book on higher education, I would recommend that it be Arthur Chickering's *Education and Identity*, (Jossey-Bass, 1969). Look at those chapters on objectives, size of institution, and role of faculty and administration. Though Chickering nowhere uses the phrase, there exists no better statement of a rationale for competency-based education. He talks very clearly about the importance of specification. Indeed, his research indicates that those colleges which seem to have the greatest influence on their students are institutions that have the clearest idea of what they are about and are able to say so in a meaningful public way.

The rest of what we are about as teachers flows from

specification. The materials we select, the classwork, the homework or other activities that we organize, the tests that we construct, the feedback mechanisms we develop, and the evaluations we make flow from specification. Out of that flow we can answer the question — "for what?" We can begin to define the way to convince professors that competency-based education is useful and necessary.

Competency-based education opens the possibility for insuring the realization of the values we promise. Again, look to Chickering. He talks about values in terms of seven vectors of student achievement which are related as a group to producing men and women competent to function in a pluralistic society. They are competent in those tasks required of the citizen in a democratic nation and in those skills requisite for earning a living. Each of us can say something about the cognitive and affective skills we value. All of us who are talking about liberal education, or about teacher education or some other form of training can define, through processes of consensual interaction, a set of educational values that we can all live with.

Competency-based education takes us a step beyond value clarification toward the true democratization of higher education. We have talked a great deal about the democratic revolution in higher education since World War II, but, as Patricia Cross reminds us in *Beyond the Open Door* (1971), that has been a revolution only in access to the classroom. Competency-based education will be the engine for moving that revolution past access and on to learning. It will do so because it increases the probability that most of our students will achieve the educational objectives we set. Higher education traditionally has concentrated its resources on successful students. Those 20 per cent are going to succeed no matter what we do. We ought to organize the bulk of our energies on behalf of that group in the middle — the 60 per cent or 70 per cent to whom we are content to assign the "gentleman's C." By focusing

on the critical and diverse learning needs of all students through competency-based education we will achieve what truly is learner-centered reform.

There promises to be a significant professional by-product in adopting competency-based education. The evaluative challenge we feel so clearly these days will no longer be avoided out of ignorance and concern about the paucity of data on learning. The evaluative challenge will be joined with sufficient data and with some confidence that we are doing a good job, that we can have influence on learning, and that we can chart the impact of different instructional strategies on learning outcomes.

To recapitulate, the answer to the question — "competency-based education for what?" — is that it significantly increases the likelihood that higher education will effect the realization of the values and skills requisite to a free society in the majority of students.

We turn to the question of "competency-based education by whom?" We're back again to the individual professor. Let's not deny or devalue the responsibility either of the student or the administrator for academic achievement. Ultimately, of course, student learning is the proof for any educational method. If the student is really disinterested in learning or absolutely incapable of it, and we can determine that with certainty, then he or she can be held responsible for his or her own failure. As analysis below indicates, academic administrators bear a real obligation to insure a supportive environment for teaching and learning. But in defining, organizing, monitoring and evaluating student learning, the faculty play a more decisive role than other actors.

Fixing responsibility only begins to answer the question "by whom?" We must also convince faculty that it is possible to act to increase learning and teaching effectiveness through the competency-based approach. We can start

by assuring them that the technologies for renewal already exist. Enough is known and available about how to operationalize the approach to move ahead in any curriculum. This seems simple-minded to many because of the alleged difficulties in defining competencies. In fact this is a "non-problem." We arrive at the statement and assessment of competencies through the process of consensual interaction among peers in the discipline. We do so by stating expected minimal, but respectable, competencies in tentative ways, looking to the teaching/learning transaction as the experimental forum for testing the sufficiency and reasonableness of such statements. Hence, we begin to develop data about whether the hypothesis about trainable competencies needs restatement. In the spirit of the Pragmatic Tradition we must suspend our almost frantic desire to know with absolute certainty that we can state all competencies and state them meaningfully. We're simply not going to know with absolute certainty. We have to rely, like lawyers, on the preponderance of evidence that we generate and organize.

What this means is that we should go about structuring teaching and learning situations in the same way we go about structuring our own research. We construct hypotheses that are geared to problems of the discipline and we establish experimental situations to test those hypotheses. We gather relevant data; we draw reasonable conclusions about the adequacy of the hypotheses; we generalize as best we can, and we recycle the process.

It is neither my intention nor my task to review all the techniques that are relevant. It simply bears repeating that there exists a sufficient number of them to begin immediately. If we have the will, we can define those competencies we are interested in teaching toward with reasonable clarity.

This gets us back to our predicament. If the values and

advantages of competency-based education are clear and if technology exists for using it, then why is it that faculty don't leap to awareness with joy, enthusiasm, and humility? In part, they haven't been convinced or haven't received a clear message that all this is possible. Even if we are prepared to do the job of convincing, however, there's still another problem. Do faculty really *want* to be convinced? And, if they are convinced, why should they act on this new conviction about education?

The answer lies in an examination of the professor in the institutional environment. For all of the weaknesses of a straw man argument, there is some advantage to sketching a typical situation. Let's assume that the average professor is convinced of the values of competency-based education. We have captured his or her interest by making the connection between research in the discipline and research in the classroom. She or he sees that the paradigm isn't really different and is prepared to say that it looks like an interesting and fruitful way to achieve the values she or he esteems. So far, so good. But what does it mean to proceed? It means, first, significant retraining as a classroom practitioner. She or he must be retrained in various teaching technologies. Then, she or he finds that there are significant adjustments that must be made in the way she or he relates to colleagues, to students, to administrators and other staff. These are significant alterations. She or he discovers that it will be necessary to make new demands on administrators and colleagues for support.

Yet, what does a professor typically face? The short of it is that she or he confronts a void of positive reinforcers. Students resent being asked to operate in a different way. That resentment is fertile ground for negative responses. It's not pleasant to discover a new approach to education, and with enthusiasm, to spring it on students only to find that they strongly resist. They were comfortable with the more passive educational routine. This new approach asks

them to work harder than they're going to have to work in other courses.

A professor is seldom reinforced by his or her colleagues for new educational ventures. The profession has effectively adopted a vow of silence about teaching. It's difficult to talk about the problems one encounters in the classroom, or the nice things that happen, or the ways we've had to change. "Innovators" threaten other faculty. There's a general unwillingness to support instructors for promotion, tenure, and other considerations based on teaching competence. There is an unwillingness to regard any data about teaching competence as meaningful because we're not willing to measure and value it as we do research. We operate in research out of the pragmatic tradition where all conclusions are tentative. We operate in teaching out of an absolutist tradition where all conclusions must be axiomatic and irrevocable.

Administrators, of course, have scarce resources. They compound the problem by distributing them randomly. They don't make decisions about professional support in terms of any particularly well-identified series of goals and objectives around teaching effectiveness. They have a limited sense of the range of reinforcers that are possible — from social support to decisions about promotion and tenure.

So, the average professor is caught in a trap of severely competing values. She or he has strong needs for esteem, for respect and for a decent self-image. These are personal, immediate, and real. They're more important than secondary values, such as the wish to see most of his or her students succeed. She or he may have them for 16 weeks at a time. She or he has her/himself for a somewhat longer period.

In all, the average professor has a value set that says teaching is his or her real, fundamental mission. This is, by all catalog statements, the assumed universal understanding about the chief goal of higher education. In practice, how-

ever, the agreement is betrayed and the values confused by students, colleagues, and administrators.

The fundamental question we're bound to pose, once we've said that teaching and learning are the most important missions of any institution is, "so, what?" How does the statement about mission help us to make determinations that are relevant to a faculty member's life and professional development? What we say makes little difference to him or her if, in fact, she or he is reduced to finding only intrinsic personal rewards in everything she or he does.

The corrective to this discouraging set of conditions is that we must manipulate environmental factors so that faculty will find opting for competency-based education personally and professionally rewarding. A colleague and I have constructed an institutional assessment and planning model which, we believe, can generate useful data about those environmental factors that impact teaching and learning. The model identifies five keys or sets of factors which determine the probabilities that teaching and learning will be effective. The first has to do with the willingness of the institution to state its goals for teaching effectiveness in clear, behaviorally meaningful terms over a given period of years. The next four factors concern the steps that are necessary to realize those goal statements: the allocation of the time of a critical mass of faculty to those activities likely to increase teaching/learning effectiveness; the organization of sufficient administrative support, in policy and practice, for the efforts of those faculty; the securing of peer support for their work; and the definition of those teaching practices deemed by researchers in teaching and learning to contribute most clearly to enhancing conditions of learning for most students.

The word "manipulation" has been used to describe what must be done to improve the conditions for teaching for faculty. It is a conscious choice. Frankly, the alternative — denying any influence on or responsibility for the de-

cisions faculty make with regard to teaching and learning — has worn thin. The fact is that in higher education we are in the business of changing people. But, say you, "My values and the values of Western Civilization stand against any manipulation of individuals. I prize freedom. You seem to be suggesting a sort of slavery within academe." The reaction is typical and worth serious response.

Let's consider the issue in its proper context. Ask yourself these questions: Am I not involved in manipulating something when I opt as a teacher for some format for learning, competency-based or otherwise? Are we not manipulating at least the conditions for learning in order that students will tend to behave in certain ways and not in others? Do I not manipulate some crucial dimension of a colleague's decision-making when I offer him or her my assistance and support or oppose his or her tenure case because of his or her unusual work in a novel form of instruction? As an administrator, do I not manipulate faculty by encouraging them to opt for competency-based education, then withhold my support for them at critical personnel junctures? What do I make of the fact that, even if I deny that I play any manipulative role, my colleagues believe that my acts contributed either to increasing, stabilizing or decreasing their range of options? If I deny any responsibility for defining that range of options, where do I accept any responsibility for anybody, for the realization of any values, for anything with human consequence in higher education?

Personally, I admit to owning a large sense of responsibility. I value competency-based education for the promise it holds for student learning. I value satisfactory professional growth for faculty. I want to exercise some manipulatory influence on environments, events, and people in higher education in order to ensure that both values are realized. I will act publicly, and with accountable regard for the ethics of the liberal tradition. (I also value civil rights and

civil liberties and believe they are fit for governing the internal life of educational institutions.) I believe that we must do all that we can within that tradition to influence the arrangement of environmental factors that reinforce faculty in their commitment to a useful and decent educational program. What is best about competency-based education is that it turns over to both students and faculty true responsibility and real freedom to find an increased range of options for education in a democratic society.

VI.

HOW DO YOU CHANGE PROFESSOR FUDD?

Robert E. Knott

A considerable amount of change has occurred at Mars Hill College over the past several years. As you probably are aware, we established a competence-based curriculum. We viewed the CB curriculum as a means of facilitating that change by stating the priorities of the instructional program in terms of specific outcomes, and encouraging change to occur toward realization of those outcomes.

Change is continually occurring in most people, faculty included. A basic management concern is directing that change. From an institutional perspective when thinking of directing change one has to conceptualize the direction of change that is desired. A second basic question to be answered has to do with the extent that faculty participate in shaping particular institutional changes. Since faculty participation is critical to lasting and effective educational changes I want to lay out three basic principles on which I think a faculty development program should be organized and then give you some specific examples of each of them.

The first one is the principle of personal meaning. Lasting change in a professor is directly related to the degree of personal meaningfulness that new roles have for that professor. The second principle is organizational clarity. Lasting changing is fostered or inhibited by the degree to which the organizational structures of the institution are made clear and are consistent with curricular goals and program intent. There must be consistency between structures, goals, and content. The third basic principle involves institutional rewards. Institutional rewards must recognize and support

change in desired directions. These three principles affect the extent and scope of institutional and personal change, change that is meaningful in helping professors adapt or become more able in what they're doing.

Let's look at the first, personally meaningful change. A professor must have the opportunity to shape and design the curriculum from the outset. It doesn't have to be a grassroots movement, but faculty certainly need to involve themself in a personally meaningful way very early in the change process.

Second, there has to be an opportunity to select the areas of the curriculum where one can make the most viable contributions. Faculty members sense that they do some things well and other things poorly. Faculty generally wish to either work on present strengths in order to develop or maintain them or to examine their weaknesses and bring particular talents to bear in overcoming them. Different faculty will choose different options. So the curriculum that is competence-based provides the opportunity for a professor to begin to be personally involved early by saying, "Here is where I think I can make the greatest contribution to helping students move toward particular competencies."

Third, the program design must raise the professor's awareness of strengths and weaknesses that he or she has with respect to the goals set by the institution. Let me share with you a set of tasks that comprise our faculty development program. (See Figure 1.) Examine the first task. In our institution we have seven basic competences which we expect students to possess. Professors choose the competence area in which they want to work. After they choose an area they become a part of a larger faculty contracted to that program. The contract states explicitly the program areas in which any faculty will be working.

The first thing the faculty member has to do upon selecting an area is demonstrate that he or she has that

FIGURE 1. FACULTY DEVELOPMENT PROGRAM TASKS

1. Faculty Achievement of Required College Competence.
2. Development of Instructional - Counseling/ Advising - Evaluational Skills Necessary to Assist Students in Achieving the Competence.
3. Identification of Needs of Faculty.
4. Planning and Execution of Faculty Development Program Around Identified Needs.

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competence. Often the faculty member must do considerable work before he or she is able to demonstrate the competence.

After demonstrating the competence the second requirement of faculty is to examine the skills of instruction, counseling, advising and evaluation which are necessary in order to assist the students in attaining the competence. Now that a faculty member can recognize the competence in him or herself, how does one teach for it? How does one counsel, teach and assess for students possession of it?

The analysis of necessary skills leads to identification of the developmental needs of each faculty member. Faculty state their needs directly based upon their own self-assessment. Now the administration has to commit itself to assist faculty in developing needed skills. The administration at Mars Hill College had to generate over $400,000 to support faculty change over the past two years. On the basis of those three principles, we planned at Mars Hill College a comprehensive faculty development program for a year at a time based around the identified needs of particular faculty. It is a collective program and each competence area has its faculty needs stated so there has to be a provision of abundant initial support for both personnel and material needs.

Even after faculty perceived needs are met, there remain difficulties. The greatest difficulty that we've encountered in carrying out the faculty development program at Mars Hill is organizational clarity. For curricular reform to be successful, there has to be a focusing of the faculty energies on well-defined tasks. Otherwise, faculty shift energies from task to task without gaining a sense that they have completed anything. They've begun many worthwhile projects but haven't had any real satisfaction that any of them is successful. That means, in terms of programs, that realistic demands have to be placed on time and efforts of faculty so that renewal occurs with some sense of accomplishment. We at Mars Hill have had to redesign total faculty responsibilities so we actually recognize faculty who are getting into the design of new programs by giving them credit for reform activities.

Another element that I think is critical to the success of changing faculty behavior, is a thorough review of the anxiety producing elements which cause faculty to withdraw from the tasks before them. Below are discussed some issues which raise anxiety among members of an academic organization.

One of the major contributors to anxiety is non-clarity in organizational structure where one doesn't really know where or for what the rewards come. Another consequence of lack of organizational clarity is confusion as to the extent that the administration is genuinely behind the efforts at reform.

Assuming the elements most productive of anxiety are addressed, one should remember that dynamic tension between the present development of the faculty member and the goals of the institution must not be removed. The reduction of anxiety is not the same thing as the elimination of tension. The curricular goals of the competency-based curriculum at Mars Hill have created that source of tension. Joseph Schwab speaks to this point. "That kind of faculty

movement will only arise if tough administrators provide models of what is needed. Provide those models over the heads of present faculty and then drag the rest of the faculty kicking and screaming to witness what those models do and what their rewards are." I do not pretend that this will be easy. I do not pretend that it will be peaceful, but I do say it is necessary. In my experience I have found no alternative to the provision of successful models for professors and students. That's one way of creating the source of dynamic tension.

Another necessary item is a realistic reward system. There has to be institutional recognition of faculty efforts to develop their skills in the direction of successfully implementing the curriculum. At Mars Hill we set aside for next year $35,000 to be used solely as faculty requested. This is in addition to that bulk of money that goes into the ongoing faculty development program. The $35,000 is to be used just to reward people who want to involve themselves in activities in addition to those set-out in the faculty development program.

In addition, there is a faculty development committee at Mars Hill which is responsible for making recommendations to the administration on tenure, promotion, and merit increases. The faculty development committee drew-up criteria for recognition which are consistent with the new competence-based programs so that faculty members who are most active in the new program will meet more of the criteria for these kinds of institutional rewards than faculty who are not.

For the administration this means you have to have put your money where your faculty is supposed to be. I see no other successful way. Otherwise faculty will quite rightly perceive that the administration is not strongly supportive of reform. This is where I think educational leadership and general statesmanship are important in working with faculty.

Another important element in a sound reward system is the flexibility to respond to personal needs as they arise. Faculty who are working day after day in the "nitty-gritty" of getting a program going need an outlet. Give the faculty member a chance to get away and participate in a conference or a program of his or her choosing. Give him or her relief simply to reflect from a non-involved distance for a month or semester. Give him or her a chance to read a paper which describes what they are trying to do. They then become a defender of the new enterprise. Faculty often come back with more experience, ready to tackle problems with new enthusiasm. This is partly because they have developed a different perspective on what they were doing. They are usually reinforced in their activities even if they encounter some severe questions from others. They come back having thought more broadly about their goals. The flexibility and money to meet those kinds of needs should be present.

In summary, I think a successful faculty development program has to reflect a sense of personal involvement on the part of the faculty member or the change will not be lasting in his or her behavior. Second, the organization has to be clear in that it is designed to bring about the changes that it has set for itself as institutional goals. Being specific in stating those institutional outcomes, particularly of faculty and their behavior, is part of organizational clarity. Third, the reward system must be one which is clearly supportive of the changes that you hope to have occur and which the faculty have played a part in shaping.

VII.

IMPLEMENTING COMPETENCY-BASED EDUCATION: "CRITICAL THINKING ISN'T A COMPETENCY?"

Mark A. Schlesinger

The competency-based education movement — and one can indeed call it that now — is flourishing. In the blush of excitement that characterizes many germinal, promising movements, one can find competencies stated in career or job specific terms, discipline-mastery terms, and supra-disciplinary terms (the so called "generic," or transferable, competencies such as critical thinking, communication, value clarification, and problem solving).

To its great credit, the competency movement is not a huckstering one. The overall issues involved in competency-based instruction are approached with a proper sense of respect; I think one can even detect a presentiment of awe among some competency-based practitioners. It is no small task to define and operationalize what our bulletins have always said we do anyway.

There is a modern parable that illustrates this definition problem. It is the story of the corporate executive who one day swept his desk clean, resigned his position, went home, kissed his family goodbye, and embarked upon an uncharted journey to discern the meaning of life. Several months later our erstwhile corporate executive was climbing a jagged Himalayan peak in a snowstorm, 50 pounds thinner, clothing in tatters. He happened upon an aged man in a flowing white robe, eyes deep with transcendent wisdom, sitting in the lotus position.

He said to this man: "O Great One, they told me in the village that you could help me. I have been searching for the meaning of life. I will not rest until I find it."

The wise old man shifted his gaze benevolently to his unexpected guest and with arms spreading outward he half whispered, "Life . . . is a fountain."

The executive toyed with the phrase "life is a fountain," tried voicing it once or twice, and in exasperation asked, "Is that all?"

"That is all."

The pupil thought some more, and finally burst out in an understandable relapse into corporate jargon: "That won't wash. I've invested time and money in this search. I've given up my job, I've left my family, I've nearly starved, and I've traveled half way around the world, only to hear you tell me that life is a fountain! You've gotta be crazy."

Thereupon a long silence, after which the Great Man extended his arms to the shoulders of the seeker, gazed incredulously into his eyes, and said, "Life . . . isn't a fountain?"

Competencies in the curriculum are the equivalent of a long sought fountain. Colleges and their faculties have sacrificed money, time, and energy in the pursuit. Yet, to the extent we sit in one position, settled on our mountain tops with our competency constructs, we shall be vulnerable to the practitioner, the researcher, the business person or industrialist, the legislator, the parent, or the curious but supposedly naive freshman—all to whom we may someday have to respond: "Critical thinking . . . isn't a competency?"

The implementation issue is not one that can be resolved, or even broached, without careful consideration of other issues, particularly the rationale for implementation, its systemic consequences, and the means by which "success" is determined. All of this may be a truism that hardly needs restating. Yet, there is a corollary that seems more elusive; that corollary states that the object of implementation cannot and should not be final. We can't relax when

we've taken our university or college or program from point A to point B. If success is to follow, continuous reappraisal and redefinition is mandatory.

In this sense, the college curriculum itself is best seen as an insoluble problem. The ideal of solving it need not be abandoned; in fact, that ideal is more closely approximated by behavior which accepts, and indeed glories in, the problematic nature of education. Hefferlin once quoted F. M. Cornford to depict academia's attitude of resistence to change: "Nothing should ever be done for the first time." When curricular change agents are able to outflank this attitude, we might add: "Nothing should ever be done for the last time."

Let us treat implementation not as a step by step, one-shot, program-mounting activity, but as a continually recycling one. I shall be talking mostly in terms of "generic competencies," those supra-disciplinary, transferable capabilities that a liberal arts undergraduate education can conceivably address.

What is unique about CBE, and how does that affect its implementation?

The overriding distinction of competency-based education is its attempt to define and operationalize the *outcomes* of learning—not simply how they are measured, but what they *are*. The whole notion of "competency" implies that the prevailing curricular outcomes, as well as our measurement of those outcomes, are fair game.

This perspective differs quite significantly from the assumptions implicit in many other types of learner-centered reform. These reform types are frequently directed toward the *process*, rather than the outcomes, of higher education. It may be oversimplistic to state that these reforms constitute merely a repackaging of the same old thing; but the literature on the Personalized System of Instruction, Com-

puter-Assisted Instruction, Programmed Instruction, even independent and interdisciplinary studies, largely fails to illuminate the overall outcomes of higher education. In an understandable bow to prevailing norms in evaluation of educational effectiveness, these reforms are often justified on what we once thought were simply measures of education, but which now have come to represent, accurately or inaccurately, the "outputs" of traditional education. The primary dependent variable in research on PSI, for example, is content mastery—either norm- or criterion-referenced. The latter, in which universal minimum standards are set, is somewhat akin to the competency approach (and, indeed, is referred to by many as "competency-based education"); however, the "competency" may be little more than a new way of demonstrating "he remembered his facts."

The attempt to shift the curriculum to competency mode must be viewed in a largely different light. It need not be a repackaging; it need not be just another wrinkle on the curricular elephant hide. It may involve *many* processes. To live up to its promise, it *must* involve a set of implementing assumptions and strategies that recognize the current and ever-existing problematic nature of higher education's outcomes.

Faculty-Administrator interaction. The fact that educational innovators continually speak of the college department in terms analogous to an impenetrable fortress does not lessen the accuracy of that observation. One envisions the advocate of generic competencies trying to scale the walls of Fortress Sociologica, Fortress Scientifica, Fortress Humanitas, and so on, only to be reduced to catapulting stones or epithets in their direction. Put more tersely: how do you get the committed disciplinarian to think of basic, life-long capabilities that transcend his or her discipline?

The problem is doubly difficult: on the one hand, faculty participation is essential in implementing CBE; on the other hand, the notion of generic competencies which trans-

cend disciplinary considerations is hardly one to encourage such participation.

Broad faculty participation is essential, perhaps to a unique extreme in CBE implementation, because of—again—the basic rationale for CBE. If the goals of higher education are viewed as problematic and requiring extensive revision—a stance implied by CBE—the chief purveyors of higher education must 1) realize the problem; and 2) be involved in testing solutions to the problem. In the vernacular, it is their baby. Additionally, CBE involves constructs that remain largely hypothetical and unvalidated. We therefore need the informed perspectives of the *disciplines*—and not just the behavioral sciences—to define what we mean by critical thinking; or how sciences, for example, clarify self-held values or the values of others; or what problems in communication are engendered by our technology.

The disciplinary fortresses may be penetrable. During cease-fire negotiations, the CBE advocate can point out that supra-disciplinary does not mean *non*-disciplinary. It is not inconsistent to believe simultaneously in the integrity of the disciplines and the validity of generic, transferable capabilities. Every discipline, conceivably, can address every competency; critical thinking, for example, need not and should not be the domain solely of the symbolic logicians in math or philosophy. In fact, the notion of generic competencies invites the possibility of spreading the wealth; it may be a boon to certain departments whose existence is currently threatened.

Other common ground may be stressed. At Bowling Green, this common ground is the sense of frustration that many of our faculty experience with our current general education mission, or lack of it. We have come to prize the faculty member who has sensed anomalies in that mission and who wants to investigate just what he or she is doing that will be of long term benefit to the student.

College and the "Real World." The competency movement also provides a unique opportunity for the university to cooperate in a dynamic fashion with the outside world. If we are going to make claims for the future utility of the capabilities we deem important for our students, we must ascertain the relevance of these capabilities to business, industry, leisure life, professional life, and so on. It might be unreasonable to expect such assessment to occur across the board, prior to mounting competency-based programs. Even in the CBE programs that specifically address one career area, such as CBTE, the entire field can not be combed. Yet, the intention to define what we mean by "success" in later life, how that success is attained, and how we know it is attained—that intention is one that should be explicit. Equally explicit should be our intent to consider these matters as part of a continual reforming of that which is initially implemented.

The interaction between academics and non-academics is not so problematic in the professional field as it is in the liberal arts. Many, perhaps most, college instructors in the professions are or have been practitioners. They embody the desired linkage between academia and the outside. And the competencies they seek to help their students attain frequently are relatively straightforward performance capabilities.

We've found from personal experience that the bridge between the liberal arts and the "outside" is not so easily constructed. There is a reservoir of distrust, for example, between college and corporation. This distrust is not lessened by academic humanists approaching corporate heads and asking: "What can I do to help prepare my students to be effective in your corporation? What do you think of critical thinking?" Again, common needs must be emphasized. The university seeks to help its students achieve productive adult lives. The corporation seeks a productivity of its own. The academic's knee-jerk reaction to that kind of productivity

has been that it has no relevance to the college curriculum. Who wants to assist students to become ladder-climbers, money-grubbers, hard-nosed corporate executives, characters in search of an Arthur Hailey novel?

There is abundant evidence that corporations themselves do not necessarily seek such characters. There is further evidence, most of it prescriptive or anecdotal, that those who do well in corporations possess certain capabilities that we have hardly defined and for which we have little or no validated measurement. An example might be sensitivity to the non-verbal components of interpersonal communication; or "creativity;" or problem-solving acumen.

There is danger here that has echoes from the past. You remember Clark Kerr's "federal grant multiversity" in which the university was viewed as the servant to the needs of other societal institutions. You may also remember Robert Paul Wolff's rejoinder to the Kerr model. Wolff's concern was that the university separate societal "needs" from "wants." There is a curious polarity in the history of higher education's relationship to the outside world. On the one hand, colleges and universities have designed programs in isolation from that world, simultaneously making claims for the real-world utility of those programs. On the other hand, and this more clearly approximates the Kerr model, colleges and universities have in effect said: "tell us what you want; give us the money, and we'll put it together for you." It seems to me that neither operating model has resulted in effective preparation of our students for later life.

My greatest fear for the CBE movement is that these two approaches will once again evince themselves. It need not happen, as the opportunity for interaction between college and the outside, in which neither party is passive, is becoming more apparent. The fact that corporations are becoming interested, coupled with the blooming of the com-

petency movement, provides an opportunity that must be exciting to all who have evinced frustration with current conceptions of educational outcomes and their utility in later life.

Implementation issues implied by institutional type and size.

We turn now to a consideration of how implementation problems differ between small colleges and large universities. As it did when we considered institutional roles, the rationale for CBE provides a natural starting point. It informs issues of climate and faculty predisposition, autonomy, and communication as they relate to implementing CBE.

"Climate" and faculty predisposition. Earlier, we noted that CBE is in large part an effort to define and operationalize what our bulletins have always said we do anyway. This assertion is perhaps more apt in describing small liberal arts colleges than in describing large universities or liberal arts colleges contained therein. Let me cite an example from the bulletin of a small, private midwestern liberal arts college:

> The educational process is concerned with the intellectual, spiritual, cultural, social, and physical development of each student and seeks to prepare him adequately for the responsibilities of life itself as well as for leadership and service in the modern world.

Other bulletins may speak of "24-hour living and learning experiences," facilitating the actualization of self and the attainment of successful interpersonal relationships, developing communication and reasoning capability, and so forth. We can play a game here that is interesting—for a minute or so at least. That game is to take such bulletin statements and derive a competency for each. State that

competency in behavioral terms, and then begin to think about levels of attainment within the competency, the means of achieving competence, and the evaluation of competence. It gets more complicated. But to the extent a college has a tradition, a self-conscious image which somehow informs the behavior of its faculty, administration, and students; and so long as that tradition involves, at least in the abstract, a devotion to the developmental aspects of the whole person, such a college is greatly advantaged in constructing and implementing a CBE program. The rationale is already there. The fact that full-blown competency programs in the liberal arts currently exist mainly at such small colleges is illustrative.

One can cite examples of small colleges where large-scale changes have been effected by a relatively small, cohesive group of highly motivated individuals; these individuals have written grant proposals, brought the issues to appropriate councils, and overseen the implementation of reform. The faculty, faced with diminishing enrollments, fluctuation in preeminence of individual departments, and limited employment opportunities elsewhere, may grumble. But when reform is couched in terms of survival, its short-term success is enhanced.

Its long-term success is another matter. Very often, approval in principle does not connote approval in fact or a whole-hearted commitment to that which is approved. Size also becomes important. It is one thing to say that 50 per cent of your music and art faculty supports the reform and is willing to reallocate faculty load in terms of, say, non-disciplinary, problem-oriented centers. It is another thing to note that you have four faculty members in music and art.

While the undergraduate college of a large university may not be ideally situated to effect total program change, it has more freedom to allocate faculty time by virtue of the relative numbers of its faculty members who are wholly

committed to the reform in question. The issue then shifts to the degree of autonomy central administration or appropriate councils are willing to grant these innovators.

Autonomy: justifying the reform and placing it in its larger context. Those responsible for shifting an entire college curriculum to a new mode may sense an imperative to evaluate that shift, either for their own purposes (i.e., to justify the shift to themselves) or because it is a requirement of a granting agency. Their counterparts who have effected reform in part of a university curriculum are compelled to evaluate themselves for others within the university. This evaluation may be in terms of the performance and motivation of students, the attitudes of faculty, and other such variables that inform the curricular process. These variables may bear no relationship to the reform at hand: how relevant is it to compare the grades of Bowling Green's Little College students (who have been exposed to an intensive critical thinking and communication learning sequence) with those of non-Little College students? An innovation must frequently be justified in terms of an educational style it is attempting to counter.

The issue of relative human and financial costs must also be borne by university-based innovators in terms comparative to extant programs. Such evaluation may also occur, of course, at the small college whose total program has been reformed, but the reform itself is not an issue — only how that reform is practiced in subsectors of the college. In the university, the justification is for the reform itself.

The justification of CBE programs which exist side by side with "traditional" ones is not aided by the fact that such innovative programs require specialization in certain maintenance, adaptive, and managerial functions. Bowling Green's University Division of General Studies, because of the different nature of its programs, must have its own evaluation specialist and student counselor. It would be unreasonable to expect these duties to be assumed by an insti-

tutional research office or the student affairs wing, respectively. Both agencies serve needs and interests that are more global, and have neither the time, the money, nor the manpower to assume new tasks appropriate for the various innovative ventures sustained by a single university. On the face of it, then, reform structures such as the University Division may be accused of adding duplication and manpower waste in an era when excesses are to be frowned upon.

Finally, innovative programs within universities must assure students that they are not in a cul-de-sac. Equivalencies between innovative and traditional programs must be articulated so that students can flow easily between these programs. And when the innovation involves something as untried as a competency construct, it must declare these equivalencies in a relative vacuum. The following passage, culled from Bowling Green's Modular Achievement Program (MAP) 1972-73 *Summary Report*, illustrates this difficulty:

> Under ideal circumstances, achievement criteria and levels of competency would be defined only after they were known to be fundamental predictors of human performance. Without such data, MAP was virtually left to produce a new set of criteria and to experiment with its usefulness. While willing to do this, MAP has not been willing to endanger the future academic career of students; thus it has taken the approach that it would only define a set of competencies that students should hold, but would also guarantee that this set would include proven competence in traditionally defined areas. It was MAP's hope that a group of students would emerge who not only had achieved in traditional areas, but who also had an additional set of competencies that MAP wished to suggest as de-

fining the general education component of the baccalaureate.

Communicating the reform. Those who are involved in the reform of programs within institutions have at least one clear advantage over their counterparts effecting institution-wide change. That advantage lies in communicating the rudiments of the reform to the faculty and students who are programmatically engaged. Their engagement is presumably the result of their a priori interest in and commitment to the reform.

The small college switching over its entire curriculum must get the word out to the pro, the anti, and the apathetic. If it conducts workshops on new teaching/learning approaches, it must gauge the aspirations of the workshops according to a broad range of interest and experience. A visit to such a college, attempting to modularize its curriculum, illustrated these difficulties. Initial faculty response to the modularization imperative ranged from "I don't know what a module is, and I'm going to sit tight until they tell me" to "Modules? Why, sure, I've designed 150 of them in the last three weeks." It could reasonably be argued that neither response indicated an understanding of modularization.

Summary of differences between college and university; and some caveats. The preceding has briefly touched upon some implementation issues which must be approached differently, according to institutional size or complexity and the sweepingness of reform. To summarize:

> Implementing generic CBE in a total college curriculum has certain advantages over reform of a program within a university. These advantages are: 1) the possible long-standing tradition of concern for developmental issues implied by CBE; 2) the fact that the reform's autonomy is not an issue — articulating the reform with other curricular pro-

grams or agencies is thus no problem, and evaluation of the reform *can* (it doesn't, necessarily) occur according to criteria which befit the reform's goals and purposes.

Implementing generic CBE in a program within a university has certain advantages: 1) a substantial cadre of able and committed faculty can more likely be identified before the fact; 2) communicating the rudiments of CBE to that cadre is less troublesome than embarking on a college-wide faculty development program.

One possible long-term disadvantage to the small college which has not yet been raised is the market issue. CBE in small colleges may be stimulated in part by the declining fortunes of such institutions. Whether CBE will ease the decline remains to be seen. One could imagine instances in which the decline would be hastened: it may be terribly difficult to get the generic competency idea across to students who have been nurtured on content mastery and grading and who expect more of the same in college.

The university, with its inherent variety and complexity, has the long-term advantage of "hedging its bets," maintaining internal flexibility. It need not commit itself to a single road "in a yellow wood."

But, ere smugness set in upon those of us from such "flexible" institutions, we should be reminded that the university's flexibility may also be depicted as a kind of schizophrenia by those committed to an ideal in, say, liberal education. Universities, as private colleges, have resource problems these days. Attitudinal and fiscal support for CB undergraduate programs can get lost among the conflicting priorities of graduate, professional, and preprofessional programs. The conflict may exist *within* the *individual* faculty member who divides his or her time between graduate and undergraduate teaching. Staking out a mission

for the liberal arts in such an atmosphere is not so different from setting down immutable international law at the United Nations.

Conclusion

Recently, I attended a conference dealing chiefly with the Personalized System of Instruction, or Keller Method. The rudiments of PSI are: self-pacing; learning units or modules in which written tests evidence mastery; and the employment of students as tutors. The main idea is that students, in an atmosphere of positive reinforcement, will take learning more upon themselves and, thus, learn better.

The mode of conference presentation was: lectures from prepared papers; little or no interaction between presenter and audience; rigid scheduling, and a bombardment of findings which were difficult to discern from facts.

I have little inherent objection to a conference conducted in this fashion. I was struck, however, by a small irony: we learned about PSI as "traditional" students — passively, removed from the action, locked in to a schedule, receivers rather than doers.

A similar irony exists in the establishment of CBE programs. Very often, out of the necessities of time and money, or the limitations of our knowledge about what is really important in human performance, we define our terms and set our paths hastily and arbitrarily. "Our students will attain competence in critical thinking. Critical thinking is a generic competency that involves the ability to reason, to argue rationally, to recognize assumptions, be skeptical . . ." Once defined, such constructs may be internally valid. But only continuous scrutiny can determine whether 1) they are being attained and 2) they indeed represent something that is *externally* valid — a crucial human capability.

We face a situation in which we must implement CBE programs in a non-CB fashion. We can't be absolutely clear

about our programmatic objectives; we can't be sure if faculty development workshops or informal contacts or legislation or just "letting flowers bloom" will get our program where we want it to be. And we are hardly certain of how to know when we've gotten there, and whether "there" is the right place to be. We are constrained to conduct our implementation efforts in a manner that potentially only remotely resembles the kinds of behavior we expect from students in the CB mode — unless we bring to the endeavor the same capacity to evaluate, to rationalize our experience, that we expect of our students.

This is said not to deride current CBE efforts, but to praise their daring and resourcefulness, and to reemphasize the necessity for a self-conscious posture of skeptical uncertainty. The risks and the logistical difficulties involved in implementing CBE, particularly in the generic sense, are enormous. Perhaps the "fountain" can never be fully defined; but it's fun trying. And in such efforts, education quite possibly finds its closest approximation to "Life."

VIII.

NOTES ON THE IMPACT ON STUDENTS OF A COMPETENCY-BASED FRAMEWORK (CBF)

James L. Litwin

Not to my amazement, I find that students are a relatively neglected topic when competency-based programs are discussed. We discuss taxonomies, curricular strategy, the role of faculty, mechanics and logistics, but we rarely get around to talking about students. We assume that programs are good for students, especially if we've worked on them diligently, and a funding agency has sanctioned us. We check it out with students at a later date. I do not presume to speak for students but would like to use this paper to raise student-related issues as I understand them, and as they have been raised by students in various reports. My own understandings are derived from what I know about the competency-based frameworks at Alverno, Mars Hill, Sterling, College 3 at Massachusetts (Boston), Grand Valley State, Florida State, Colgate II, Governors State, and Bowling Green. What follows, then is a composite profile of "CBF and the student," rather than a finely tuned picture of what it is like at any one specific institution.

Role of Student

The student, in general, should process through a CBF by: (1) undergoing initial diagnosis and inventory, (2) having an understanding of the competencies which must be attained, (3) negotiating prescriptions or learning activities to attain those competencies, (4) undertaking the prescriptions or learning activities, (5) continually evaluating

progress, (6) submitting to final evaluation, and (7) being certified as "competent."

To a great degree, some of these steps are no different from what may occur in the traditional framework. What is probably important is not the sequence of activities, but how they are characterized in a CBF. It strikes me that what follows are essential characteristics of CB frameworks:

Time-Free (self-paced)
Space-Free (on or off-campus)
Individual Choice of Learning Activities (at times, negotiated or prescribed)
Personalized Instruction
Explicit Objectives
Self-Evaluation for Readiness to Test
Self-Directed Learning
Multiple Modes of Evaluation (simulation, tests, jury exams, etc.)

In most instances, students must adjust to a program with such expectations; they have usually experienced a more rigid and standardized curriculum in high school. The available material does give us some insight into problems students encounter in CBFs, and adjustment problems are apparent.

The following responses are taken from evaluation reports at some of the institutions previously mentioned. Again, this is a synthesis; each program provided somewhat different problems for students, and each program had different subpopulations (e.g., biology, nursing, urban planning students) with yet their own unique problems. I have taken the liberty to group these.

Small numbers of students (anywhere from nine to forty) were usually reported in these studies. They identified these problems:

1. Learning is too unstructured, with resultant moti-

vational problems (no checkpoints, no reinforcers, no prods).

2. There is not enough contact with other students (though group interaction was not desired by all).
3. Study habits must be changed.
4. Time must be budgeted differently.
5. There is not enough credit given for the time and work required (a common reaction in many experimental programs).
6. There is a tendency to procrastinate and defer completion of work.
7. An anxiety about jury or oral examinations exists.
8. There is not enough direction on how the program works.
9. Students feel little institutional support.
10. There is a frustration with continuing the program if the student perceives self as "competent."

All of these problems are not generic to competency-based frameworks, but that does not suggest they should be dismissed, perhaps they ought to be dealt with in these frameworks as well as in others.

There were also benefits that students perceived; these would include:

1. Self-pacing.
2. Individualization.
3. Opportunity to know faculty.
4. Practice in presentation of ideas.
5. Experience in oral presentation.
6. Not having to just regurgitate material.

7. Individual tutoring available.
8. Testing when prepared.
9. Not having to attend boring classes.
10. Greater flexibility in personal scheduling.

Expected Outcomes

In one sense, benefits for students can be seen as programmatic outcomes, but in another sense, we usually think about outcomes as the results of having those benefits. I prefer to use them in the latter sense for this paper, and have gone on to consider some expected outcomes for students who are experiencing competency-based frameworks.

A. Most CB frameworks emphasize process skills (analytic, information retrieval, hypothesis-testing, model-building, evaluative, etc.), as much, if not more than content. However, it is still not clear if such skills will be gained solely through the learning activity per se, or will the CBF itself be the teacher, for example, will the student's evaluative skills be honed as he/she decides on which learning activity meets necessary criteria? (The medium may be the message.)

B. Students will become self-directed, if not they are likely to fail or transfer or drop out. What responsibility do we have for students who can't handle such an ideal?

C. The learner can eliminate guesswork at assessment time, and specific objectives will probably lead to higher performance, though perhaps, at the loss of a broader education. Specificity may produce "technicians" regardless of occupational choice.

D. There will be a better relationship between one's college education and post-collegiate jobs. At pres-

ent, there is little guarantee that a college education predicts anything except future academic achievement.

E. Students can be involved in the community and gain experience, but they may lose the benefits of being in an environment with peers and faculty who disagree with them. The loss of struggling with value-conflicts could be detrimental to the student.

F. A choice of learning style on the part of the student may preclude forced development of other modes of learning in a society which may demand such diversity.

G. The evaluation of self has obvious values, but this should not deny evaluation by others who often can contribute insight.

Impact Research

I have been attempting to suggest possible impacts of competency-based frameworks on students, but assume that we will continually assess that impact, rather than take it for granted. Therefore, we must design some reasonable strategies for understanding the impact of such programs. Although little is available on CBF, there are analogues to CBF or components of it that have been examined in terms of their impact on students.

In a recent review of the research on learner-centered reform I, along with the other authors, concluded that the literature on PBTE and CBE is mostly "design" literature; research on PSI shows that PSI sections generally stimulate significantly higher test scores and more favorable evaluations of course and instructor; independent study is not well-researched; in general, students achieve equally well and are equally satisfied. We found that most of the research is based on "one-shot" analysis using traditional achievement tests.

It rarely addressed other dimensions of intellectual development.

CBF presents a tremendous opportunity to measure those outcomes which seem most critical: self-direction, analytic tools, model-building, evaluative skills, etc., because of the early diagnosis, pre-testing, and inventory work that normally takes place. In many instances, post-testing will provide answers about the students' growth and development during college. However, the research will be far from problem-free. Few students will experience uniform learning and developmental activities, therefore the variables "causing" change will be even more difficult to categorize than they are under conditions of uniform curriculum requirements. In nearly all instances individual case studies will have to accompany aggregate analyses, if we are to understand the impact of a CBF on students.

Concluding Comment

I am optimistic about the impact of CBF on students. However, there are at least two caveats which I would like to mention which temper my enthusiasm.

1. Unless we can better transmit the importance of "process" skills, they may still go unused by students. There is no guarantee that these skills will be used, just as there is no guarantee that information will be retained. The degree to which they become habits may be critical. Perhaps, that is why the CB framework must be the message (not the competencies). Some students will refine the art of "beating the system" in CBF just as they do under other frameworks.

2. Those most likely to benefit from CBF will probably stay away. The self-pacer, the self-starter, the person who does well in jury exams will choose and participate in such programs. In those cases where

there is no escape from such programs, many students will need help. Those who have the potential to operate well in such a framework, but lack the confidence or the immediate skills will probably search for the college or university that provides an alternative to a CBF.

IX.

EFFECT OF A COMPETENCY-BASED INSTRUCTIONAL SYSTEM ON STUDENT AND FACULTY ATTITUDES

Marcia Mutterer Mentkowski

As creators and implementers of instructional programs, we must be prepared to respond to questions about how the instructional system considers the person. There *are* system characteristics of a competency-based framework (CBF) demanding that human factors be considered. In fact, a competency-based instructional system is so dependent on its ability to meet human needs that it will probably be scrapped unless it continues to do so. James Litwin has given you a composite profile of "CBF and the student." I wish to provide an in-depth profile of CBF and the student by examining the gap between the ideal competency-based program and the real program as it may actually operate. I believe this contrast between the real and the ideal to be the product of two factors: (1) instructional systems are usually developed at institutions in a series of successive approximations to an ideally operating program; and (2) student and faculty attitudes and expectations acquired from years of learning experiences interact with the characteristics of any new instructional system.

Since CBF is a relatively new instructional system developed in a series of successive approximations to the ideal CBF, it has the potential to create as many student and instructor affect problems as it attempts to solve. Permit me to illustrate this statement by taking a specific look at instructor and student attitudes toward CBF in The University of Toledo's Competency-Based Teacher Education program. I will consider both student and faculty attitudes

because faculty attitudes toward the program affect student attitudes, and vice versa. To ignore instructor affect is to ignore a major determinant of student affect. I also believe that an understanding of student-faculty interaction effects is (1) the key to solving affect problems, and (2) the source of establishing the kind of professional commitment necessary to overcome program flaws, and to achieve program goals. While the very problems I identify may be solved a year from now, the *way* in which they are solved is the system's *stable* component, the one that can be generalized to other programs.

The Ideal: Success is Available to All

One of the characteristics of CBF expected to create positive student affect is criterion-referenced vs. norm-referenced evaluation. Ideally, students are not competing against one another for a limited number of A's and B's. Success defined as mastery of instructional objectives is available for all. Advanced students may avoid redundant instruction by testing out of instructional modules. There are several opportunities to "recycle" (receive additional instruction and reevaluation), if module criteria are not reached on the first attempt. There is no penalty to students' grades from recycling since failure to meet criteria will not be "averaged in" to lower a final successful performance.

The Real: Differences in Performance Yield the Same Rewards

What happens when all students do achieve mastery? Students raised on a norm-referenced system react by saying, "No matter how hard I work compared to others, I get no special rewards." Students and employers trained to compare, do so. College grade-point averages still communicate excellence. Students say, "If we all reach mastery, how will a potential employer know I really did a better job?" Rewards for and recognition of individual differences in per-

formance are program characteristics that many students expect. The ideal concept, that CBF offers a better opportunity to become a better teacher, is lost. The ideal of an individualized program where each student is progressing through some required modules and some self-selected modules at his own rate, with instructional strategies adapted to his particular learning style, also is lost. In reality, the lack of individualized instruction and self-selection, characteristic of a program in its first approximation, creates feelings that individual differences are not recognized. This is reflected in the variability of response to questions regarding the pacing, flexibility and order of module presentation. The lack of individualization and options is more likely to create a dehumanizing picture of a mechanized, controlled program which turns out teachers who look and act the same.

Time limitations of university systems and the consequent necessity of some limit to the number of recycling opportunities also belie the notion that success is available to all. Getting each one of a large number of students to meet module criteria is difficult, and there may be the temptation for faculty to slightly reduce module criteria at the end of a number of exhausting recycling procedures. Students who met criteria on the initial attempt have said, "It would have been easier to do less on my own, get more instruction after failing, and perhaps get even slightly lower criteria by waiting!"

Thus opportunities to recycle may reduce anxiety, but they also reinforce and reward procrastination. Procrastination has a negative effect on student motivation that especially influences faculty perceptions of student effort. Competition and fear of failure may have been the major motivation for some students. With these factors absent, students may attempt two of the three allotted tries before they make a decided effort. In an ideal CBF, failure is borne by the system. In reality, the professor perceives himself as

ultimately responsible for both student and system failure. He must "make up" for the failure of the student and the system by recycling. Recycling is viewed as "extra work" for which he receives no load credit. If a faculty member believes failure to be due to procrastination, he becomes angry. If recycling is due to student absence, even though it is legitimate, the professor also becomes upset. If recycling is due to lack of motivation, or if a student makes the decision that he does not need the instruction to pass the module, the professor gets very upset. In CBF, class absence is no longer a student's choice. Yet students believe it to be their right to miss class.

The Ideal: Diagnostic Evaluation

CBF expects to produce positive instructor and student affect by using evaluation diagnostically. The instructor can on the one hand demand mastery of all objectives before teacher certification, but can also allow several tries without having to use evaluation as a punishment, thereby reducing test anxiety. Instructors have a way to revise the program immediately, and to test out the effects of revision immediately because they get constant data on the efficacy of instruction from the computer-based assessment/revision system.[1] Instructor time saved from scoring tests and recording test results may be devoted to preparing additional instruction for students who do not attain mastery. Even this additional preparation time is lessened through an analysis of objectives not met, and by grouping students with like problems, information that is available from the assessment/revision report. The advance planning required by CBF to delineate objectives and criteria leaves more time for selection, design, and implementation of a variety of instructional strategies.

Positive affect is further enhanced by the assessment/revision system that reduces the time-lag following testing and provides for more immediate feedback. Since a copy

of the student's progress per module is sent to his adviser often, the adviser can provide more up-to-date guidance.

The Real: Increased Anxiety Over Data-Gathering and Evaluation

While the assessment/revision system provides for less time spent in scoring and recording, additional time is needed to interpret the results that come back to the instructor for planning instruction for recycling. Further, more time is needed to analyze the data for improving instruction in general. The emphasis on data collection and analysis may turn off those faculty concerned with maintaining an awareness of and provisions for "humanizing" instruction. A slow, step-by-step introduction of the system helps alleviate a negative reaction. It is important to give the task of additional data-gathering to those faculty who are familiar with the purpose and value of CBF so that extra burdens are not placed on faculty who may distrust the system and its increased data-gathering function. Professors are even more likely to distrust the system if data are used for non-program functions, such as accountability. Professors must be free to experiment with methods and objectives. Data on the effectiveness of instructor performance must remain within the system and not be accessible to administrators to make decisions on faculty pay and promotions, unless the faculty member requests that it be used. These safeguards must be established to maintain both faculty and consequent student affect. It is also important to recognize that objective data from the assessment and revision system be used in addition to the subjective data from faculty about the success of objectives and teaching methods.

While the assessment/revision system provides immediate feedback to the instructor on student scores, care must be taken to minimize the time between the student's awareness of his score, diagnostic feedback, and recycling opportunities. While a student may feel very good about finding

out his test results immediately, this positive affect may quickly evaporate if diagnostic feedback does not follow immediately. Instances of student concern following the receipt of a test score that did not reach mastery has led us to hold the test score until diagnosis, more instruction, and opportunities for recycling also are available.

Because evaluation in CBF is such an important component, there often is an increase in course time taken for testing and evaluation. Most college students, who have spent years in a norm-referenced grading system, appear to react to any evaluation with conditioned anxiety. While students may verbally state that they "understand" the components of criterion-referenced evaluation and its positive effects, this "carry-over anxiety" causes most students to respond to the increased evaluation of CBF with fear and trembling. For example, students are aware that preassessment scores are not used to determine a final performance score, yet students often react to a low preassessment score (that indicates they have not tested out of a module) with dejection and frustration. As one student stated after 17 weeks in the program, "I wish you would tell us ahead of time when we will have pre-tests, so we could study for them." Further, many of the pre-tests in the further stages of our competency-based teacher education program are field-based. Students find it easier to complete a module during regular instruction than to arrange for a field-test and teach.

The testing center is a component of the assessment/revision system that is expected to overcome some of this conditioned anxiety over evaluation. Students may come to the testing center to take a pre- or post-test for a specified time period (usually several days) at their convenience. There are no speed tests. Currently, however, most students prefer to use class time for test-taking since a trip to the testing center takes more outside class time. Grouping pre-tests from a number of modules to reduce the number of testing times has been effective in alleviating this prob-

lem to some degree. Making provisions for an attractive testing center is another.

The Ideal: Public Objectives and Criteria

Another aspect of CBF is that objectives and criteria are public. Since both are stated in advance of instruction, the student is assured that there is neither a hidden agenda of requirements nor unspecified criteria that will be clear only after the course is over.

The Real: Public Criticism and a Hidden Curriculum

Unfortunately, however, poor objectives, poor instruction, and poor criteria are also public. We have trained our students to expect a system that works well and overcomes the problems of other programs. We also train them to criticize our instructional system and we provide them opportunities to do so. While student input is highly valued, criticism by students can affect the way both faculty and students feel about the worth of the program. Vociferous and emotional class discussions about the merits of the program may make both students and faculty feel that the program is going down the drain

In order to minimize this negative effect we found it critical to get objective and systematic attitudinal data from students about the program. For example, we identify concerns about the program through class discussion. Then we ask for comments on paper and we build a questionnaire based on these comments that measures attitudes toward faculty management of instruction.

Identification of specific concerns is extremely important. Faculty are less likely to take this kind of criticism personally. During one winter quarter, questionnaire data[2] identified specific concerns, but also indicated that 72 per cent of that particular group of students agreed or strongly agreed that "the team (of faculty) is trying to help us" and

88 per cent agreed or strongly agreed that "most of the team members are friendly." Instructor affect presumably is higher when students say, "There are some things wrong but we think you're nice, and you care about making it better;" than if students say, "There are these things wrong with the program, we don't like you either, and you don't seem to care." During that particularly trying winter quarter, we all got a lift when we found out that 58 per cent of the students agreed or strongly agreed that "most of the things we do for this class seem relevant to completing the modules," and only 21 per cent disagreed or strongly disagreed with that statement. Fifty-nine per cent agreed or strongly agreed that "most of the things we do for this class seem relevant for teaching kids in schools," and only 21 per cent disagreed or strongly disagreed with that statement. Systematically gathered attitudinal data versus selective criticism seems to be a must for maintaining affect.

Systematic program revision in response to criticisms of the program however, is impossible without data. As stated earlier, data collection also can create affective problems. Not all faculty may have the skills or the desire to participate in numerous data gathering (especially the gathering of behavioral data), to record accurately, to interpret and use the results, and to carry out the implementation of change.

Constant revision of objectives and criteria in CBF lead faculty to recognize additional criteria important in gaining mastery of the modules, good teaching, or professional commitment. There is a time-lag between the recognition of additional objectives and criteria, and when they are written into the modules. Thus, students cannot technically be held accountable. A professor may give special instruction which he thinks all students should have — instruction that may not be necessary for module mastery as currently written. Students have the experience of being able to pass the module with only part of the instruction.

Students used to cramming before their midterm and final, and missing classes in between, may try this strategy and occasionally have it rewarded. Despite our intentions, we have created another hidden curriculum.

Recommendations for Closing the Gap Between the Ideal and the Real

On the positive side, many of the negative effects on student and faculty attitudes created by CBF can be reduced in several ways. First, we need more recognition of individual effort through more individualized instruction. We need to provide for as many individual differences in faculty and student expertise and interest as possible in the management of instruction. Second, we need an improved evaluation system. Affective needs cannot be met in the absence of concommitant concern with program validation. Affective support is generated for a program with demonstrated positive outcomes. Third, we need systematic data gathering on student concerns, and we need to measure attitudes toward the program often. Attitudes toward program concerns must be differentiated from attitudes toward faculty. Fourth, we need a continuing effort to make the hidden curriculum public. We should establish program commitment by faculty to CBF well in advance of implementation with students, commitment that preserves divergent viewpoints. We must examine the motivational components of CBF to predict student study and attendance behavior. We must identify all expectations of student performance and make them public. Affective objectives should be included as part of the program.

Meeting Student Needs by Creating Commitment to Program Goals and Values

One problem created by CBF that seems much more difficult to solve is lack of student and faculty commitment to program goals and objectives. In CBF it is rare to find

modules for developing attitudes. Development of student and faculty commitment is part of the hidden curriculum. With increased attention to public performance, this hidden curriculum becomes public. Both students and professors may realize that a fellow student should be counseled out of the program because of lack of ability or commitment. This is a difficult procedure and both students and faculty will attempt to avoid. Not only do differences in student abilities and commitment become apparent. Differences in faculty and commitment become apparent. Students, confused by lack of faculty commitment, think, "If you don't think it is important, why do I have to do it?"

The problem of student and faculty commitment is of major importance in our competency-based teacher education program. The very nature of program goals (that of teaching) demands commitment. But this program goal raises a larger issue: Can a teacher training program really be completely responsive to student needs? Can students' individual rights as learners be resolved with the rights of society by competent teachers? To what extent do students have the right to select their own objectives? To what extent should competencies be chosen by experts?

I believe that student affect problems created by a professional program that is not completely responsive to student needs can ultimately be solved only through student commitment. We don't build professional commitment by identifying commitment to educational goals and values with a staunch belief in CBF or some other instructional system. CBF still remains a process and not a program even though there are certain educational goals that are realized through the components of CBF. Any objectives can be competency-based. Students will not be committed to just any objectives and neither will the faculty. The selection of goals and values remains of utmost importance, yet a smoothly running instructional system is a prerequisite to student concern over program goals and values.

When we conducted a formative evaluation of our program[3] in which we compared our educational goals with our objectives, we found that there were specific objectives that fit each one of the broad overall program goals. We did not have enough higher-order objectives that realize an understanding of the goals and values of the profession. Concern for the educational, psychological, and philosophical rationale underlying competencies creates a sense of professional community and commitment and also leaves students with a *Gestalt* of teaching, rather than a set of specific, unrelated skills. We know we aren't going to develop values or commitment in students by having them go through a module on values clarification or a module in which the stages of moral reasoning are identified. The moral and ethical dilemmas that take place every day in university and public school classrooms have to be dealt with in small group discussions. Student and instructor interaction is the key to solving affect problems and the source of establishing the kind of professional commitment necessary to overcome program flaws and to achieve program goals.

1. Gentry, C.; Cohen, S.; Dunn, T.; Mutterer, M.; Myers, D.; Yorke, D.; Dolinsky, D., and Beckwith, D. "Without an Assessment and Revision System, CBTE Programs are Lost," *PBTE*, Vol. 3, No. 3, Sept., 1974, pp. 1, 2, 8-12.

2. All data reported are from a questionnaire developed by Marcia Mutterer and Dennis Myers, who conducted a study of student affect.

3. Mutterer, M.L., and Irmer, A. "A Formative Evaluation of the Elementary Competency-Based Teacher Education Program at The University of Toledo." Research report submitted to the College of Education, The University of Toledo, 1974.

X.

THE CUE CENTER: THE FUTURE OF GENERAL EDUCATION

Gary A. Woditsch

The Future of General Education. That, indeed, is quite a topic. If I were sane, I would simply stand here speechless, but sanity has never been a prerequisite for public speaking. So I will calmly tell you what the future of general education ought to be, describe briefly how the CUE Center relates to that miraculous future, and take my chances with whatever straitjacket or net emerges from the wings.

I can't resist first sharing with you an observation on what general education is like today. In a recent speech at Hillsdale College, John Howard, president of Rockford College, chose to paraphrase a comment which Macbeth makes in the second act, as he seeks solace within the chapel. In the original, the comment is as follows:

> Confusion now hath made his masterpiece
> Most sacrilegious murder hath broke ope
> The Lord's anointed temple and stole
> There the life o' the building.

John Howard's paraphrase has it as follows:

> Confusion now hath made his masterpiece
> Most outrageous nonsense hath broke ope
> The honored house of intellect and stole
> There the life o' the building.

When one scans the bulk of what general education has become in the halls of academe, it is difficult to avoid a glum concurrence with Howard's paraphrase. But there is a spark of light in all the murk. Even John Howard says he's not

pessimistic about the future. He can't conceive how things could get any worse, and he allows as how some voices have emerged that speak good sense. I would maintain that at least up to this instant, the conference has been blessed by some of those voices, and as one glances through the excellent little book prepared by the Southern Regional Education Board, *A CBE Primer*, there is good cause to hope for more voices to come. I'm going to ride that hope, lickety-split, to some point in the future where all my dreams have come true. But first I have to decipher two guideposts on the path so you have at least some idea how I got there.

My first point is too simple to put simply, so let me make it a little more difficult. I want to assert an axiom about man's relationship to his world. We get to the axiom by noting that all sentient organisms exhibit a capacity for *directed* action. They can organize behavior across time so as to realize non-random future states. If they can't do that, they can't survive. And we can let this capacity for directed action stand as a primitive definition of purposiveness — a kind of purposiveness that both man and the amoeba share.

Now here's the axiom: All purposive organisms deal with their matter-energy environment *selectively*. That means that if they are to survive at all, they can attend to and process only a very tiny portion of the information available in their real context. Investigators tell us that via our visual system alone, we receive a hundred million bits of information every waking second. We can't begin to handle that amount of information indiscriminately, so our eye, which is a biolologically selective organ, ignores the bits and attends only to their field effect.

Most organisms are pre-determined in their selectivity. The criteria that fixes what they respond to in their environment is biochemically defined, so that a tiny set of emanations from the world around it attract the amoeba, and another tiny set repel it. The rest of the world goes by unnoticed.

When we come to man, we see that he, too — despite his noble complexity — must deal with the world selectively. But wonder of wonders, the criteria he employs are *variable*, and a good part of the variability is under his control through a higher order capacity we call *cognition*. To a large degree, man builds his own criteria for what he chooses to count as salient in his world, and this capacity to build his own criteria — to give different forms to the "bloomin, buzzing confusion" of experience — means that in a profoundly real sense he models his own world. And he strives to model in such a way as to better serve his purposes.

The second assumption is a bit more complex, so I'll put it simply: By his own lights, man can never achieve a terminal knowledge of himself or his world. He cannot reach the "bottom line," so to speak. He can only achieve better approximations given his purposes. As he builds better models to account for experience, they in turn stimulate refinements and extensions of his purposes, which in turn stimulate new approximations, and so on and on.

It is now a simple task to step into my ideal for general education. General education will be dedicated to developing more competent model builders and wielders. It sounds simple, and probably inane, but it is neither. The transition from now to then would be, perforce, radical. Let me try to convey the difference between today's approach to general education and one in command of this notion of cognition as a process of modeling.

The difference, in a nutshell, is that the processes good students employ as they negotiate general education curricula will themselves explicitly become that curriculum. One can find a parallel in the development of mathematics.

For approximately two thousand years ancient Egyptians used arithmetic to resolve the quantifiable problems of an increasingly sophisticated society. In its latter phases the process required great numbers of scribes working their

arithmetic problems on slates from dawn to dusk; two thousand years of working arithmetic before someone discovered a meta-language called algebra! Algebra is, after all, a language *about* arithmetic, and it opened vistas in our understanding of the behavior of numbers that could never be unlocked by the language of arithmetic alone. It made explicit *what* the scribe was in fact doing with his numbers. By employing algebraic functions, one could do in five minutes what would cost the competent scribe five hours, or perhaps five days. And it wasn't until we invented algebra that we could really begin to understand the capacity, nature, and character of arithmetic. Man wins understanding through the process of building a language appropriate to what he seeks to understand.

That is what I think is in store for general education — the process of building a new language about the liberal education of human beings. Interestingly enough, it will not be a language primarily concerned with "changing" general education. Its purpose will be much more radical than that; it will employ new perspectives mainly to improve our grasp of what is really happening in current educational practice. What the new language is capable of illuminating there will determine the nature and thrust of future change in general education.

This new language will mark a shift from an "arithmetic" to an "algebra" of general education. It will help us stop the compulsive "adding" and "subtracting" of bodies of knowledge in the shallow hope that one or another sum will signify having been generally educated. It will lead us to concentrate on the "functions" that characterize the liberally educated mind; functions that prove productive across whole ranges of life's problems, and demonstrate themselves as again and again useful in the business of living.

You might think it odd that we are at present short of an adequate language for the job. We do not have an "alge-

bra" descriptive of general and highly transferable competencies, and how these may best be developed. We do not have such a meta-language simply because we have not, until recently, seen a need for one.

But how can this be? Mankind has always been interested in his own capabilities, and devotes much effort to their analysis. True indeed, but that interest, particularly as it relates to education, has been constrained by a set of powerful assumptions that only recently have come to be questioned.

The first assumption is that man's competencies, whatever they might be, unfold and mature automatically. The notion that has somehow dominated our understanding of how man matures is that he will tend to perform as well as he is able. On that assumption, there is no need to comprehend how competencies develop. All that we need do is cause them to be exercised.

We are coming now to understand that man functions no better than he has to, rather than as well as he is able. Moreover, the evidence continues to mount that we are marvelous, and often unselfconscious, mimics. Whenever possible, I will strive to accomplish with a lower-order skill what you might wish me to engage with a higher order one, and I'll do so in such a manner that you will find it difficult to tell the difference. There are college freshmen with high ACT scores and reputable high school records who have never engaged in sustained conceptual thought, simply because easier ways of using one's head have sufficed. A number of them earn college degrees without ever triggering such higher order skills in the process.

The shift from viewing man as inclined to perform as best he can, to viewing him as inclined to doing no more than he must, impacts seriously on the general education agenda. When we understand that human beings can successfully *avoid* developing a number of basic, highly transferable

(and hence broadly useful) competencies, we suddenly need a capacity to discriminate competencies from counterfeits, and we need new understandings of how best to sequence and stimulate the development of generic capabilities.

In its small way, that is what the Competency-Based Undergraduate Education (CUE) Center at Bowling Green State University strives to move toward — fundamentally new insights concerning generalizable human competencies and how they might best be developed. I'll describe very briefly four classes of activity that the CUE Center pursues. It is useful to think of each activity as something that needs to be done in building our new language.

A language needs a universe about which it may discourse. Human development is the proper general education universe, and the CUE Center combs literature across the behavioral, natural, and speculative sciences for what can be gleaned there concerning the character of human capabilities and their mode of maturation. The result is a growing set of annotated bibliographies on cognitive skills, value clarification, conflict resolution, CBE and CBTE, and curricular experimentation generally. From hence will emerge the words and terms — the atomic units — of our new general education language.

Second, a language needs to "try" its meanings. It develops its semantics by relating words to one another the way experience relates the things those words describe. The CUE Center commits itself heavily to sponsoring faculty experimentation so that our new general education language will be vulnerable to experience. We have faculty engaged in developing and testing "de-jargonized" instruments for diagnosing critical thinking competencies; faculty carefully contrasting incompatible approaches to the development of critical thinking skills; faculty taxonomizing problem solving strategies, and experimenting with the educability of infer-

ence patterns. We have faculty engaged in a massive action-research effort to determine whether PSI/Keller/Mastery methods of instruction develop generalizable and transferable skills. Other faculty are probing the degree to which a standard undergraduate college curriculum does or does not require employment of various cognitive skills. Pedagogies for the development of value clarification and writing skills are under pursuit by faculty in controlled environments. All of this experimentation is designed to teach us more about the way generic competencies function and grow. It also sets a norm that we prize for a general education meta-language, and that is that its assertions should be falsifiable.

Fourth, and most difficult of all in securing a new language, there is need for a community of "speakers" who are committed to a constant process of insuring the utility and vitality of the tongue. Cliches need to be thrown out and more precise and probing formulations adopted. Without such a community, our new general education language will grow as limp and flacid as our present one is. At this point we begin to talk about new role models for our primary language users, who will be faculty. If the language is to remain illuminating, it must remain experimental, and it will remain experimental only if experimentation characterizes its users. What this implies is a professional stance that recognizes general education as the *least* rather than the *most* secure domain of educational practice. As wild-eyed as it may sound, I insist that the only equable way to enter a general education course is with clear expectations of what you suppose should happen to students therein, and get curiosity as to whether it does, in fact, happen. That is an experimental attitude; the only attitude that will keep the lore of our new language from becoming myth.

We have found faculty at Bowling Green and at every other institution we've visited who embody this problematic view of general education, who recognize that the old lan-

guage is no longer adequate, and who have set about sifting through the evidence for new ways of defining, and hence attacking the problem. The ones who progress and who retain their excitement are those who have managed to shift their focus from their own disciplines to the impact of their instruction on the development of student capabilities. That, I would assert, is the future language of general education. If we do not help speak it and shape it, we may shortly be judged, by those who partake in and deserve general education, as having nothing at all to say.